



Department of
Design and
Construction

PROJECT ID:

CO290BCHJ-2

LAW

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 1 OF 3

BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

Bronx Hall of Justice Remediation- Bid Package 2

LOCATION:
BOROUGH:
CITY OF NEW YORK

265 East 161st Street
Bronx 10456

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

DGS

Rafael Vinoly Architects



Date: January 25, 2016

6-115



**Department of
Design and
Construction**

DR. FENIOSKY A. PEÑA-MORA
Commissioner

CHARLETTE HAMAMGIAN
Agency Chief
Contracting Officer

October 25, 2016

CERTIFIED MAIL - RETURN RECEIPT REQUEST

LANMARK GROUP, INC.
2125 Mill Avenue
BROOKLYN, NY 11234

RE: FMS ID: CO290BCHJ
E-PIN: 85016B0125001
DDC PIN: 8502016CT0006C
BRONX HALL OF JUSTICE
REMEDATION-BID PACKAGE 2-
BOROUGH OF THE BRONX
NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of \$11,128,645.40 submitted at the bid opening on June 24, 2016. 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.



**Department of
Design and
Construction**

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Michael Shipman'. The signature is written in a cursive, somewhat stylized script.

Michael Shipman
Director of Contracts

Qualification Form

Project ID: CO290BCHJ-2

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: Lanmark Group, Inc.
Name of Project: New Kensington Branch Library - New Construction
Location of Project: 4211 18th Avenue, Brooklyn, NY

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

Name: Robin Sen, Sen Architects LLP
Title: Architect Phone Number: (212) 604-9522

Brief description of work completed: The new public library construction includes a structural steel structure with exterior masonry, skylights, terracotta cladding, curtain walls, elevator, lift, two floors of office and book space, and a full cellar with a meeting room and MEP rooms. This project is LEED certified.

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

Amount of Contract: \$8,962,246.75

Date of Completion: 7/2012

Name of Contractor: Lanmark Group, Inc.

Name of Project: Bronx Civil Supreme Courthouse

Location of Project: 851 Grand Concourse, Bronx, NY

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

Name: John Phillips, Mitchell/Giurgola Architects LLP
Title: Architect Phone Number: (212) 663-4000

Brief description of work completed: Interior renovation of 30,000 square feet of floor space. Scope includes asbestos abatement, painting, complete demolition of all existing partitions, doors, ceilings, floors, furnishings & equipment, & all associated hangers and supports. Renovation consists of new partitions, floors, ceilings, lighting fixtures, doors, benches and built-in courtroom casework; installation of exterior pressurization ductwork and renovation of the four primary egress stairs of the building. Structural work is limited to modifications required for the new lift, and new stairs.

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

Amount of Contract: \$11,661,620.79

Date of Completion: 10/2012

Qualification Form

Project ID: CO290BCHJ-2

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: Lanmark Group, Inc.
Name of Project: PS 132 (BRONX) - INTERIOR WALL REPLACEMENTS & REPAIRS
Location of Project: 1245 Washington Avenue, Bronx, NY

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

Name: Matt Santos
Title: Project Manager-SCA Phone Number: (917) 418-9410

Brief description of work completed: The renovation includes structural reinforcements of staircases new sheer walls and structural repairs of existing masonry load bearing walls. The scope also includes new demising walls at 32 classrooms and new classroom equipment and finishes.

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

Amount of Contract: \$5,897,073.42

Date of Completion: 8/31/12

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: _____

Tax ID #: 20-4557644

APT E-
PIN#: 85016B0125

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 # 85016B0125 FMS Project ID#: CO290BCHJ-2
 Project Title/Agency Bronx Hall of Justice Remediation- Bid Package 2
 PIN # 8502016CT0006C
 Bid/Proposal
 Response Date: Tuesday, June 21, 2016
 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)

The project work includes Post Construction Remediation.

M/WBE Participation Goals for Services

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

Prime Contract Industry: Construction

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

Line 1

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



Tax ID #:

20-4557644

APT E-

PIN#:

85016B0125**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 #

20-4557644

FMS Vendor ID #

0002764003

Business Name

Lanmark Group, Inc

Contact Person

George Manouselakis

Address

2125 Mill Ave., Brooklyn NY, 11234

Telephone #

(347)462 4000

Email

info@lanmarkgc.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 6)

Calculated M/WBE Participation Amount

Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture.

Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.

\$ 11,128,645.40 X13%

=

\$ 1,466,723.90
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 #: 20-4557644

APT E-
PIN#: 85016B0125

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

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

MBE WBE

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

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

Section IV: General Contract Information

What is the expected percentage of the total contract dollar value that you expect to award in subcontracts for services, regardless of M/WBE status? % 60

Enter brief description of the type(s) and dollar value of subcontracts for all 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. STEEL 430,000
- 2. ROOFING 50,000
- 3. CARPENTRY 1,000,000
- 4. PAINTING 200,000
- 5. PLUMBING 48,000
- 6. HVAC 2,995,000 MBE
- 7. ELECTRICAL 385,000
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____

Scopes of Subcontract Work

Section V: Vendor Certification and Required Affirmations

I hereby:

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

Signature Eletherios Kougentakis
Print Name Eletherios Kougentakis

Date 6/19/2014
Title President

N/A

SCHEDULE B - PART III - REQUEST FOR WAIVER OF MWBE PARTICIPATION REQUIREMENT

Contract Overview

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

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

_____ % Agency M/WBE Participation Goal

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

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

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

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

References

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

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

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

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

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

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

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

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

Signature: _____ Date: _____
 Print Name: _____ Title: _____

Shaded area below is for agency completion only

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

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

#1

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

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

PROJECT ID: CO290BCHJ-2

Bronx Hall of Justice Remediation- Bid Package 2
265 East 161st Street
Bronx 10456

Name of Bidder: Lanmark Group, Inc.

Date of Bid Opening: 6/24/2016

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

Place of Business of Bidder: 2125 Mill Ave., Brooklyn NY 11234

Bidder's Telephone Number: (347) 462 4000 Bidder's Fax Number: (347) 462 4001

Bidder's Email Address: info@lanmarkgc.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 New York

Name and Home Address of President: Eleftherios Kougerlakis
2412 National Drive, Brooklyn NY 11234

Name and Home Address of Secretary: George Manouselakis
2270 East 73rd Street, Brooklyn NY 11239

Name and Home Address of Treasurer: _____

BID FORM

PROJECT ID: CO290BCHJ-2

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

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

Total Price for
Material Sold and
Delivered

Total Price For
Labor

\$ 3,830,054.20 +

\$ 7,109,100.20

Total Price for Item A= \$ 10,939,154.40

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

\$15,000.00

- C. AMOUNT for Proprietary Items (pages 2a)

\$174,491.00

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

\$11,128,645.40

BB 6/24/16

BIDDER'S SIGNATURE AND AFFIDAVIT

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

Bidder: Lanmark Group, Inc.

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

Attest: [Signature] George Manouselakis
(Corporate Seal) Secretary of Corporate Bidder

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

BID FORM (TO BE NOTARIZED)

AFFIDAVIT WHERE BIDDERS IS AN INDIVIDUAL

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:

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

(Signature of the person who signed the Bid)

Subscribed and sworn to before me this
_____ day of _____

Notary Public

AFFIDAVIT WHERE BIDDERS IS A PARTNERSHIP

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:

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

(Signature of Partner who signed the Bid)

Subscribed and sworn to before me this
_____ day of _____

Notary Public

AFFIDAVIT WHERE BIDDERS IS A CORPORATION

STATE OF NEW YORK, COUNTY OF Kings ss:
Eleftherios Koussentakis 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 242 National Drive, Brooklyn NY 11234
I have knowledge of the several matters therein stated, and they are in all respects true.

Eleftherios Koussentakis
(Signature of Corporate Officer who signed the Bid)

Subscribed and sworn to before me this
14th day of June, 2016

Joanna Sadowska

Notary **JOANNA SADOWSKA**
NOTARY PUBLIC - STATE OF NEW YORK
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 2018

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: Lanmark Group, Inc
Address: 2125 Mill Ave
City: Brooklyn State: NY Zip Code: 11234

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

20-4557644

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.

NOTARY PUBLIC
STATE OF NEW YORK
COMMISSION EXPIRES 12/31/13

BIDDER'S IDENTIFICATION OF SUBCONTRACTORS

Project ID: CO290BCHJ-2

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

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

1. **PLUMBING CONTRACTOR:**

Description of Plumbing Work:

EAGLE ONE MECHANICAL
(Print Name)

Agreed amount to be paid Subcontractor: \$ 48,000

2. **HVAC CONTRACTOR:**

Description of HVAC Work:

ACS SYSTEM ASS.
(Print Name)

Agreed amount to be paid Subcontractor: \$ 2,995,000

3. **ELECTRICAL CONTRACTOR:**

Description of Electrical Work:

TAU-VAL ELECTRIC CORP.
(Print Name)

Agreed amount to be paid Subcontractor: \$ 395,000

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

Efendi Kang Eleftherios Kourentakis
(Bidder's Signature) (Print Name)

2125 Muel Ave, Brooklyn NY 11234
(Address)

President
(Title)

(347) 462 4000
(Phone #)

(347) 462 4001
(Fax #)

6/14/2014
(Date)

BID BOND 1
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, Lanmark Group, Inc.
2125 Mill Avenue, Brooklyn, NY 11234

hereinafter referred to as the "Principal", and Federal Insurance Company
15 Mountain View Rd., Warren, NJ 07059

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

TEN PERCENT OF AMOUNT BID

(10% Amt Bid), 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 _____

Bronx Hall of Justice Remediation, Bid Package 2 - CO290BCHJ-2

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

- (a) Within ten (10) days after notification by the City, execute in quadruplicate and deliver to the City all the executed counterparts of the Contract in the form set forth in the Contract Documents, in accordance with the proposal as accepted, and
- (b) Furnish a performance bond and separate payment bond, as may be required by the City, for the faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all respects to the City and shall be executed by good and sufficient sureties, and
- (c) In all respects perform the agreement created by the acceptance of said Proposal as provided in the Information for Bidders, bound herewith and made a part hereof, or if the City shall reject the aforesaid Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.

BID BOND 2

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

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

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

The surety, for the value received, hereby stipulates and agrees that the obligations of the Surety and its bond shall in no way be impaired or affected by any postponements of the date upon which the City will receive or open bids, or by any extensions of the 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 14th day of June, 2016.

(Seal)

Lanmark Group, Inc.

(L.S.)

Principal

By: *Eleftherios Kougentakis*

(Seal)

Federal Insurance Company

Surety

By: *Robert Kempner*

Robert Kempner, Attorney-in-Fact

BID BOND 3

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:
On this 14th day of June, 2016, before me personally came
Eleftherios Kourentakis to me known, who, being by me duly sworn, did depose and say
that he resides at 2412 Abington Drive, Brooklyn NY 11234
that he is the President of Lanmark Group, Inc.
the corporation described in and which executed the foregoing instrument; that he knows the seal of said
corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of
the directors of said corporation, and that he signed his name thereto by like order.

JOANNA SADOWSKA
NOTARY PUBLIC - STATE OF NEW YORK
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 2018

Joanna Sadowska
Notary Public

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

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

AFFIX ACKNOWLEDGMENTS AND JUSTIFICATION OF SURETIES

ACKNOWLEDGEMENT OF PRINCIPAL, OF A CORPORATION

STATE OF New York

SS:

COUNTY OF Kings

On this 14th day of June, 2016 before me personally came Eleftherios Kouzenta me known, who, being by me duly sworn did depose and say that he resides at 2412 National Drive, Brooklyn NY 11234 that he is the President of Danmark Group, Inc. the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to the foregoing instrument is such seal; that it was an affixed by order of the board of directors of said corporation; and that he signed his name thereto by like order.

JOANNA SADOWSKA
NOTARY PUBLIC - STATE OF NEW YORK
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 2018

Joanna Sadowska
Notary Public

STATE OF New York

SS:

COUNTY OF Nassau

On this 14th day of June, 2016, before me personally came Robert Kempner to me known, who, being by me duly sworn, did depose and say that he is an Attorney-In-Fact of Federal Insurance Company the corporation described in and which executed the within instrument; that he knows the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he signed and said instrument and affixed the said seal as Attorney-In-Fact by authority of the Board of Directors of said corporation and by authority of this office under the Standing Resolutions thereof.

LYNN ANN INFANTI
Notary Public, State of New York
No. 01IN6004351
Qualified in Suffolk County
Commission Expires March 23, 2018

My commission expires _____

L

Notary Public



Chubb
Surety

POWER
OF
ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

Attn: Surety Department
15 Mountain View Road
Warren, NJ 07059

Now All by These Presents, That FEDERAL INSURANCE COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a New York corporation, and PACIFIC INDEMNITY COMPANY, a Wisconsin corporation, do each hereby constitute and appoint Susan P. Hammel, Robert Kempner and Robert W. O'Kane of Plainview, New York

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations
In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY have each executed and attested these presents and affixed their corporate seals on this 17th day of November, 2014.

Dawn M. Chloros, Assistant Secretary

David B. Norris, Jr., Vice President



STATE OF NEW JERSEY
County of Somerset

ss

On this 17th day of November, 2014 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with David B. Norris, Jr., and knows him to be Vice President of said Companies; and that the signature of David B. Norris, Jr. subscribed to said Power of Attorney is in the genuine handwriting of David B. Norris, Jr., and was thereto subscribed by authority of said By-Laws and in deponent's presence

Notarial Seal



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2019

Notary Public

CERTIFICATION

Extract from the By-Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached"

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that

- (i) the foregoing extract of the By-Laws of the Companies is true and correct,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department; further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in American Samoa, Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island; and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this

June 14, 2016



Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

FEDERAL INSURANCE COMPANY

STATEMENT OF ASSETS, LIABILITIES AND SURPLUS TO POLICYHOLDERS

Statutory Basis

DECEMBER 31, 2015

(in thousands of dollars)

<u>ASSETS</u>		<u>LIABILITIES AND SURPLUS TO POLICYHOLDERS</u>	
Cash and Short Term Investments.....	\$ 687,917	Outstanding Losses and Loss Expenses.....	\$ 12,174,848
United States Government, State and Municipal Bonds	9,544,097	Unearned Premiums.....	3,726,665
Other Bonds.....	4,491,238	Dividends Payable to Stockholder	1,400,000
Stocks	692,901	Ceded Reinsurance Premiums Payable.....	329,694
Other Invested Assets.....	2,187,839	Provision for Reinsurance	35,560
		Other Liabilities.....	1,295,093
TOTAL INVESTMENTS	<u>17,603,992</u>	TOTAL LIABILITIES	<u>18,961,860</u>
Investments in Affiliates:		Capital Stock.....	20,980
Chubb Investment Holdings, Inc.	3,679,770	Paid-In Surplus.....	3,106,809
Pacific Indemnity Company.....	2,930,246	Unassigned Funds	10,150,916
Executive Risk Indemnity Inc.....	1,267,144		
Chubb Insurance Investment Holdings Ltd....	1,020,650		
CC Canada Holdings Ltd.....	590,955		
Great Northern Insurance Company	469,230	SURPLUS TO POLICYHOLDERS.....	<u>13,278,705</u>
Chubb Insurance Company of Australia Ltd.	404,845		
Vigilant Insurance Company.....	306,232		
Chubb European Investment Holdings SLP ..	294,200		
Other Affiliates	566,480		
Premiums Receivable	1,659,749		
Other Assets	<u>1,447,072</u>		
TOTAL ADMITTED ASSETS	<u>\$ 32,240,565</u>	TOTAL LIABILITIES AND SURPLUS TO POLICYHOLDERS.....	<u>\$ 32,240,565</u>

Investments are valued in accordance with requirements of the National Association of Insurance Commissioners. At December 31, 2015, investments with a carrying value of \$546,611,273 were deposited with government authorities as required by law.

State, County & City of New York, — ss:

Dawn M. Chloros, Assistant Secretary _____ of the Federal Insurance Company
being duly sworn, deposes and says that the foregoing Statement of Assets, Liabilities and Surplus to Policyholders of said Federal Insurance Company on December 31, 2015 is true and correct and is a true abstract of the Annual Statement of said Company as filed with the Secretary of the Treasury of the United States for the 12 months ending December 31, 2015.
Subscribed and sworn to before me
this March 11, 2016.

Jeanette Shipsey

Notary Public

Dawn M. Chloros

Assistant Secretary

JEANETTE SHIPSEY
Notary Public, State of New York
No. 02SH5074142
Qualified in Nassau County
Commission Expires March 10, 2019



CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

NYC DDC Department of Design and Construction

DDC ID: CO2908CHJ-2
 Sponsor Agency: DGS

Project:
 Location:
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
CONTRACT 1 - GENERAL CONSTRUCTION WORK								
01.0000 GENERAL REQUIREMENTS								
01.0000	Mobilization	1.00	ls	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Temporary Power	1.00	ls	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Temporary Heat	1.00	ls	\$94,375.10	\$94,375.10	\$175,268.00	\$175,268.00	\$269,643.10
	Security Guards							
	Subtotal							
02.0000 EXISTING CONDITIONS								
02.4119	Selective Demolition							
	Selective demolition, remove existing drywall for replacement of fire/smoke dampers, excludes re-framing, loading and disposal - Item C	22.00	loc	\$495.40	\$10,888.80	\$920.00	\$20,240.00	\$31,138.80
	Selective demolition, remove existing doors, frames and hardware at AV closets - Item F	20.00	rooms	\$247.70	\$4,954.00	\$460.00	\$9,200.00	\$14,154.00
	Selective demolition, remove existing drywall for ductwork, excludes re-framing, loading and disposal - Item 2	10.00	loc	\$495.40	\$4,954.00	\$920.00	\$9,200.00	\$14,154.00
	Selective demolition, cutout, per layer of 5/8" thick drywall, excludes re-framing, loading and disposal - Item 3	5.00	ea	\$495.40	\$2,477.00	\$920.00	\$4,600.00	\$7,077.00
	Demo mechanical pipe	4,800.00	lf	\$5.00	\$24,000.00	\$9.20	\$44,160.00	\$68,160.00
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item E	30.00	week	\$396.30	\$11,889.00	\$736.00	\$22,080.00	\$33,969.00
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item F	15.00	week	\$396.30	\$5,944.50	\$736.00	\$11,040.00	\$16,984.50
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 2	5.00	week	\$396.30	\$1,981.50	\$736.00	\$3,680.00	\$5,661.50
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 10	5.00	week	\$396.30	\$1,981.50	\$736.00	\$3,680.00	\$5,661.50
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item C	10.00	week	\$396.30	\$3,963.00	\$736.00	\$7,360.00	\$11,323.00
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 13	5.00	week	\$396.30	\$1,981.50	\$736.00	\$3,680.00	\$5,661.50

NYC DDC Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM
CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

Bidder:

DDC ID: CO2908CHJ-2

Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 3	10.00	week	\$396.30	\$3,963.00	\$736.00	\$7,360.00	\$11,323.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item E	600.00	CY	\$24.80	\$14,880.00	\$46.00	\$27,600.00	\$42,480.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item C	300.00	CY	\$24.80	\$7,440.00	\$46.00	\$13,800.00	\$21,240.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item F	100.00	CY	\$24.80	\$2,480.00	\$46.00	\$4,600.00	\$7,080.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item 2	100.00	CY	\$24.80	\$2,480.00	\$46.00	\$4,600.00	\$7,080.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item 3	200.00	CY	\$24.80	\$4,960.00	\$46.00	\$9,200.00	\$14,160.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item 10	100.00	CY	\$24.80	\$2,480.00	\$46.00	\$4,600.00	\$7,080.00
	Rubbish handling, 100' haul, load, dump and return, wheeled, cost to be added to demolition cost - Item 13	200.00	CY	\$24.80	\$4,960.00	\$46.00	\$9,200.00	\$14,160.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item E	600.00	CY	\$12.40	\$7,440.00	\$23.00	\$13,800.00	\$21,240.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item F	300.00	CY	\$12.40	\$3,720.00	\$23.00	\$6,900.00	\$10,620.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item C	100.00	CY	\$12.40	\$1,240.00	\$23.00	\$2,300.00	\$3,540.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 2	100.00	CY	\$12.40	\$1,240.00	\$23.00	\$2,300.00	\$3,540.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 3	200.00	CY	\$12.40	\$2,480.00	\$23.00	\$4,600.00	\$7,080.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 10	100.00	CY	\$12.40	\$1,240.00	\$23.00	\$2,300.00	\$3,540.00
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 13	200.00	CY	\$12.40	\$2,480.00	\$23.00	\$4,600.00	\$7,080.00
	Selective demolition, saw cutting, shaft wall - Item E	340.00	lf	\$12.40	\$4,216.00	\$23.00	\$7,820.00	\$12,036.00
	Selective demolition, saw cutting, partition wall for ductwork - Item 2	500.00	lf	\$12.40	\$6,200.00	\$23.00	\$11,500.00	\$17,700.00

CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

NYC DDC Department of Design and Construction

Project: DDC ID: CO290BCHJ-2
 Location: Sponsor Agency: DGS
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Concrete core drilling, reinforced concrete slab, up to 6" th slab, including bit cost, layout and set up time at Roof for Ductwork - Item 3	6.00	ea	\$2,476.90	\$14,861.40	\$4,599.90	\$27,599.40	\$42,460.80
	Remove existing flashing and roofing for ductwork to new fans - Item 3	14.00	loc	\$990.80	\$13,871.20	\$1,840.00	\$25,760.00	\$39,631.20
	Demolition of existing shaft wall to install new pipes - Item E	500.00	sf	\$7.40	\$3,700.00	\$13.80	\$6,900.00	\$10,600.00
	GWB infill demolition - remove gypsum board, insulation and stud - Item 10	1,660.00	sf	\$7.40	\$12,284.00	\$13.80	\$22,908.00	\$35,192.00
	Cutting and patching, painting at existing walls for electrical work for new fans - Item F	2.00	loc	\$2,476.90	\$4,953.80	\$4,599.90	\$9,199.80	\$14,153.60
	Laborer - 2 men daily detailed cleanup for full duration	23.00	months	\$14,385.70	\$330,871.10	\$26,716.30	\$614,474.90	\$945,346.00
	Remove roof & concrete to install dunnage posts, provide temporary protection, patch concrete, repair roofing	14.00	loc	\$990.80	\$13,871.20	\$1,840.00	\$25,760.00	\$39,631.20
	Core drill wall, scan rebar - item 11	1.00	loc	\$4,953.80	\$4,953.80	\$9,199.80	\$9,199.80	\$14,153.60
	Subtotal							
03 0000	CONCRETE							
03 7330	Concrete Repair Work (included with other sections)							
05 0000	METALS							
05 1200	Structural Steel Framing							
	Steel Dunnage	1.00	ls	\$192,441.20	\$192,441.20	\$357,390.80	\$357,390.80	\$549,832.00
	Beam reinforcement	1.00	ls	\$25,794.70	\$25,794.70	\$47,904.50	\$47,904.50	\$73,699.20
	Subtotal							
05 7010	Decorative Metal							
	Aerial lift for Shadow Box work - Item 10	2.00	mon	\$2,476.90	\$4,953.80	\$4,599.90	\$9,199.80	\$14,153.60
	New aluminum vertical tubes, painted - item 10	315.00	lf	\$99.10	\$31,216.50	\$184.00	\$57,960.00	\$89,176.50
	New aluminum trim at vertical tubes and window openings - item 10	570.00	sf	\$49.50	\$28,215.00	\$92.00	\$52,440.00	\$80,655.00
	New aluminum frame at bottom of shadow box - Item 10	255.00	lf	\$99.10	\$25,270.50	\$184.00	\$46,920.00	\$72,190.50
	Inspect and repair existing shadow box metal panel	46.00	loc	\$495.40	\$22,788.40	\$920.00	\$42,320.00	\$65,108.40
	Subtotal							
07 0000	THERMAL AND MOISTURE PROTECTION							
07 2110	Thermal Insulation							

NYC DDC Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

Bidder:

DDC ID: CO290BCHI-2

Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Rockwood insulation around mullion, approx. 3 layers - Item 10	1,700.00	sf	\$12.40	\$21,080.00	\$23.00	\$39,100.00	\$60,180.00
	Blown-in insulation, ceilings, with open access, cellulose, 3" thick, 9th FL - Item 3	420.00	sf	\$12.40	\$5,208.00	\$23.00	\$9,660.00	\$14,868.00
	Blown-in insulation, ceilings, with open access cellulose, 5" thick, 7th and 8th FL - Item 3	840.00	sf	\$12.40	\$10,416.00	\$23.00	\$19,320.00	\$29,736.00
	Temporary protection of area/Clean-up - Item 3	1.00	ls	\$12,384.40	\$12,384.40	\$22,999.60	\$22,999.60	\$35,384.00
	Subtotal							
07 5520	Modified Bituminous Roofing Repairs							
	Waterproofing at new ductwork fans - Item 3	1.00	ls	\$12,384.40	\$12,384.40	\$22,999.60	\$22,999.60	\$35,384.00
	Subtotal							
07 8110	Fireproofing Patching and Repairs							
	Repair fireproofing at steel reinforcement	1.00	ls	\$7,430.60	\$7,430.60	\$13,799.80	\$13,799.80	\$21,230.40
	Repair of fire stopping at existing penetrations, gaps and breaches in the shaft wall - Item 3	1.00	ls	\$12,384.40	\$12,384.40	\$22,999.60	\$22,999.60	\$35,384.00
	Firestopping at penetrations - Item 3	10.00	loc	\$495.40	\$4,954.00	\$920.00	\$9,200.00	\$14,154.00
	Subtotal							
07 9200	Joint Sealers							
	Sealant at glazing, wet seal and dry gasket - Item 13	4.00	loc	\$1,238.40	\$4,953.60	\$2,300.00	\$9,200.00	\$14,153.60
	Silicone sealant at Jt. Between existing mullion and shadow box panel - Item 10	1,140.00	lf	\$7.40	\$8,436.00	\$13.60	\$15,732.00	\$24,168.00
	Subtotal							
08 0000	OPENINGS							
08 1112	Steel Doors							
	Doors, double w/louvers, including frame and hardware mods, 6' x 7' opg.	20.00	loc	\$2,229.20	\$44,584.00	\$4,139.60	\$82,798.00	\$127,382.00
	Subtotal							
08 3113	Access Doors and Frames							
	Doors, access, fire rated, metal 24" x 24"	31.00	ea	\$743.10	\$23,036.10	\$1,380.00	\$42,780.00	\$65,816.10
	Installation of MEP access doors	1.00	ls	\$12,384.40	\$12,384.40	\$22,999.60	\$22,999.60	\$35,384.00

Project: DDC ID: CO2908CHJ-2
 Location: Sponsor Agency: DGS
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost of Material & Labor
	Subtotal							
08 7100	Door Hardware (included with 081112)							
08 8811	Glass and Glazing Repairs							
	Inspect and clean glazing pockets of silicone and broken glass - Item 13	4.00	loc	\$2,476.90	\$9,907.60	\$4,599.60	\$18,399.60	\$28,307.20
	Remove retrofit aluminum framing and plexiglass panel - Item 13	4.00	loc	\$495.40	\$1,981.60	\$920.00	\$3,660.00	\$5,661.60
	G-1, tempered clear glass, 1/2" thick, reinstall snap-on cover - Item 13	400.00	sf	\$247.70	\$99,080.00	\$460.00	\$184,000.00	\$283,080.00
	Temporary protection	2.00	loc	\$7,430.60	\$14,861.20	\$13,799.80	\$27,599.60	\$42,460.80
	Subtotal							
09 0000	FINISHES							
09 2600	Gypsum Board Assemblies							
	Gypsum wallboard, repairs, cut square, patch, sand and finish, holes - Item 3	10.00	ea	\$247.70	\$2,477.00	\$460.00	\$4,600.00	\$7,077.00
	Seal off bottom of flume chase at basement level - Item 3	50.00	sf	\$49.50	\$2,475.00	\$92.00	\$4,600.00	\$7,075.00
	Metal studs for new GWB infill, 1-3/4" wide, 20 gauge, 16" O.C., includes top and bottom rack - Item 10	1,700.00	sf	\$9.90	\$16,830.00	\$18.40	\$31,280.00	\$48,110.00
	New gypsum wallboard for infill, taped and finished (level 4 finish), 5/8" thick - Item 10	1,700.00	sf	\$9.90	\$16,830.00	\$18.40	\$31,280.00	\$48,110.00
	Remove existing GWB ceiling/install new GWB ceiling/paint to match	11,320.00	sf	\$14.90	\$168,668.00	\$27.60	\$312,432.00	\$481,100.00
	Remove existing GWB ceiling with reveals/install new GWB ceiling/paint to match	520.00	sf	\$19.80	\$10,296.00	\$36.80	\$19,136.00	\$29,432.00
	Remove existing 2 HR GWB ceiling/install new 2HR GWB ceiling/paint to match	2,290.00	sf	\$17.30	\$39,617.00	\$32.20	\$73,736.00	\$113,353.00
	Misc. repair of damaged finishes - Item 3	1.00	ls	\$12,384.40	\$12,384.40	\$22,999.60	\$22,999.60	\$35,384.00
	Subtotal							
09 2650	Gypsum Board Shaft Assemblies							
	Shaft wall, 1" thick corbrd wall liner shaft side, 2 hour assembl w/dbl layer, 5/8" fr rated gypsum board room side - Item E	3,050.00	sf	\$14.90	\$45,445.00	\$27.60	\$84,180.00	\$129,625.00
	Infill existing duct opening, Level 10 - item 3	1.00	opening	\$2,476.90	\$2,476.90	\$4,599.90	\$4,599.90	\$7,076.80
	Subtotal							

NYC DDC Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM
CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

Bidder:

DDC ID: CO2908CHJ-2

Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
09 3000	Tiling (included with other sections)							
09 5113	Acoustical Panel Ceilings							
	Remove and reinstall ACT ceiling - all sizes	24,330.00	sf	\$7.40	\$180,042.00	\$13.80	\$335,754.00	\$515,796.00
	Remove & reinstall metal ceilings	500.00	sf	\$24.80	\$12,400.00	\$46.00	\$23,000.00	\$35,400.00
	Remove and reinstall ACT ceiling, 1' x 5'		sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Remove and reinstall ACT ceiling, 2' x 2'		sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Remove and reinstall ACT ceiling, 2' x 4'		sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Remove and reinstall ACT ceiling, 2' x 5'		sf	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Subtotal							
09 5114	Security Ceilings							
	Remove and reinstall metal security ceiling	940.00	sf	\$24.80	\$23,312.00	\$46.00	\$43,240.00	\$66,552.00
	Subtotal							
09 6500	Resilient Flooring (included with other sections)							
09 9100	Painting							
	Patch and paint existing ceiling at dampers, zero voc latex, primer coat, smooth finish, roller - Item C	1,500.00	sf	\$1.00	\$1,500.00	\$1.80	\$2,700.00	\$4,200.00
	Paint walls after patching, zero voc latex, primer coat, smooth finish, roller - Item 3	2,000.00	sf	\$1.00	\$2,000.00	\$1.80	\$3,600.00	\$5,600.00
	Paint walls after patching, zero voc latex, primer coat, smooth finish, roller - Item E	57,350.00	sf	\$1.00	\$57,350.00	\$1.80	\$103,230.00	\$160,580.00
	Paint walls after patching, zero voc latex, two coats, smooth finish, roller - Item 3	2,500.00	sf	\$1.00	\$2,500.00	\$1.80	\$4,500.00	\$7,000.00
	Paint walls after patching, zero voc latex, two coats, smooth finish, roller - Item 10	5,000.00	sf	\$1.00	\$5,000.00	\$1.80	\$9,000.00	\$14,000.00
	Misc. painting - Item 10	1.00	ls	\$38,639.30	\$38,639.30	\$71,758.80	\$71,758.80	\$110,398.10
	Subtotal							
21 0000	FIRE SUPPRESSION							

DDC ID: CO2908CHJ-2
 Sponsor Agency: DGS

Project:
 Location:
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
21 0002	Fire Protection special Conditions (included with 21 1313)							
21 0003	Scope of Work (included with 21 1313)							
21 0517	Sleeves and Seals for Fire Suppression Piping (included with 21 1313)							
21 0518	Escutcheons for Fire Suppression Piping (included with 21 1313)							
21 0519	Meters and Gauges for Fire Suppression Systems (included with 21 1313)							
21 0520	Piping and Fitting Materials (included with 21 1313)							
21 0523	Fire Suppression Valves (included with 21 1313)							
21 0529	Hangers, Supports, Anchors, Guides for Fire Suppression Systems (included with 21 1313)							
21 0548	Vibration and Seismic Controls for Fire Suppression Piping and Equipment (included with 21 1313)							
21 0553	Identification of Fire Suppression Piping and Equipment (included with 21 1313)							
21 0580	Access Doors in General Construction (included with 21 1313)							
21 0585	Fire Protection Firestopping (included with 21 1313)							
21 0595	Fire Protection Basic Material and Methods (included with 21 1313)							
21 0719	Insulation (included with 21 1313)							
21 1100	Fire Suppression Piping and Fitting Materials (included with 21 1313)							

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Project:

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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: Material & Labor
21 1313	Wet Pipe Sprinkler Systems							
	Relocate existing sprinkler head in AV closets (including shutdown/drain/refill)	5.00	ea	\$980.80	\$4,954.00	\$1,840.00	\$9,200.00	\$14,154.00
	Subtotal							
22 0000	PLUMBING							
22 0002	Plumbing Special Conditions	1.00	ls	\$23,778.00	\$23,778.00	\$44,159.20	\$44,159.20	\$67,937.20
	Cutting/Patching/Firestopping/CTE		ls					
	Subtotal							
22 0517	Sleeves and Sleeve Seals for Plumbing Piping (included with sections 221116 and 221316)							
22 0518	Escutcheons for Plumbing Piping (included with sections 221116 and 221316)							
22 0529	Hangers, Supports, Anchors, Guides and Seismic Restraint (included with sections 221116 and 221316)							
22 0553	Identification of Plumbing Piping and Equipment							
	Pipe/valve ID		ls					
	Subtotal							
22 0590	Testing							
	Pipe testing, nondestructive hydraulic pressure test, isolate, 1 hr hold, 1" to 4" pipe, 0 - 250 LF		lf					
	Subtotal							
22 0719	Insulation							
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 1/2" iron pipe size		lf					
	Subtotal							

CONTRACTOR'S BID BREAKDOWN FORM
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NYC DDC Department of Design and Construction

Project: DDC ID: CO2908CHJ-2
 Location: Sponsor Agency: DGS
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
22 1116	Domestic Water Piping and Fitting Materials Pipe/fits, copper, tubing, solder, 3/4" diameter, type L, includes coupling and clevis hanger assembly 10' O.C. Valve, bronze, ball, 150 psi, 3/4" diameter		If ea					
	Backflow preventer, reduced pressure principal corrosion resistant, automatic operation, ball valves, threaded, 3/4" pipe size, includes valves and four test cocks		ea					
	Subtotal							
22 1316	Sanitary Waste and Vent Piping and Fitting Materials Pipe/fits, steel, galvanized, threaded, 3/4", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering 10' OC		If					
	Subtotal							
22 1319	Sanitary Waste Piping Specialties (included with 221316)							
22 1413	Storm Drain Piping and Fitting Materials (included with other sections)							
22 1423	Storm Drainage Specialties (included with other sections)							
23 0000	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)							
23 0002	HVAC Special Conditions Concrete pads Commissioning Pipe, metal pipe, to 1-1/2" diam., selective demolition Pipe, metal pipe, 2" to 3-1/2" diam., selective demolition Shutdown/drain piping for demo Ductwork, metal, steel, cut and remove existing 18x6 Existing damper/duct, selective demolition Rigging Misc/Cutting/patching/firestopping		LS ls ls lf lf ea ls ea ls ls	\$1,520,742.40 \$19,716.00 \$19,716.00	\$1,520,742.40 \$19,716.00	\$2,824,235.90 \$36,615.40	\$2,824,235.90 \$36,615.40	\$4,344,978.30 \$56,331.40
	AHU-2 - Remove/replace fan section w/upgraded (includes furnishing VFD)		ea					

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CONTRACTOR'S BID BREAKDOWN FORM
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Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Subtotal							
23 0005	Access Doors in General Construction (Included with other sections)							
23 0200	Firestopping (Included with section 230002)							
23 0513	Electric Motors (Included with other sections)							
23 0523	Valves							
	Valves, bronze, ball, 150 psi, 3/4", threaded		ea					
	Valves, bronze, ball, 150 psi, 1", threaded		ea					
	Valves, bronze body, ball, 150 psi, 1-1/4", threaded		ea					
	Valves, bronze body, ball, 150 psi, 1-1/2", threaded		ea					
	Valves, bronze body, ball, 150 psi, 2", threaded		ea					
	Valves, bronze, relief, pressure and temperature, self-closing, 3/4", threaded, ASME		ea					
	Valves, bronze, relief, pressure and temperature, self-closing, 1", threaded, ASME		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb, 2-1/2"		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb, 4"		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb, 5"		ea					
	Valves, iron body, swing check, flanged, 125 lb, 4"		ea					
	Valves, iron body, swing check, flanged, 125 lb, 5"		ea					
	Subtotal							
23 0529	Hangers, Anchors and Supports (Included with section 235210)							
23 0540	Acoustics							
	Insulation, ductwork, board type, fiberglass liner, fire resistant, black pigmented 1 side, 3 lb density, 1" thick		sf					
	Subtotal							
23 0548	Vibration Isolation (Included with other sections)							

CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

NYC DDC Department of Design and Construction

DDC ID: CO290BCHJ-2
 Sponsor Agency: DGS

Project:
 Location:
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
23 0553	Systems Identification							
	Pipe/Valve ID		ls					
	Subtotal							
23 0593	Testing, Adjusting and Balancing		ea					
	Balancing, air, heating and ventilating equipment, in-line fan		ls					
	Balancing, air, rebalance as required		ea					
	Balancing, water, dry cooler		ea					
	Balancing, water cooled AC		ea					
	Balancing, water, main balancing cocks/valves		ea					
	Balancing, water, pumps		ea					
	Pipe testing, nondestructive hydraulic pressure test, isolate, 1 hr hold, 1" to 5" pipe, 250 - 500 LF		ea					
	Subtotal							
23 0700	Insulation							
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 3/4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 1" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1" wall, 1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 3/4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1-1/4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1-1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 2-1/2" iron pipe size		lf					

NYC DDC Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM
CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

Bladder:

DDC ID: CO2908CHJ-2

Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 3" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 5" iron pipe size		lf					
	Insulation, pipe covering, finishes, for .016" al jkt		sf					
	Heat trace rooftop piping		ls					
	Duct thermal insulation, blanket type, fiberglass, flexible, PSK facing, 1 lb density, 1-1/2" thick		sf					
	Subtotal							
23 0810	Basic Commissioning of HVAC Systems							
	Equipment start-up/testing/commissioning/coordination		ls					
	Subtotal							
23 0900	Instruments							
	Control component, gauges, pressure or vacuum, 4-1/2" dia dial		ea					
	3/4" NTP		ea					
	Subtotal							
23 0923	Building Management and Control System (BMCS)							
	Controls - condenser water system		pt					
	Controls - AV closet fans monitoring		pt					
	Controls - intergrate with existing - enginator		ls					
	Controls - airflow		ls					
	Subtotal							
23 1113	Sheetmetal							
	Metal ductwr, fbrcd rctng, supply air duct installed in shaft		lb					
	for a flexbl connct field sktchs, excld as-built drwgs and insultrn		lb					
	Duct accessories, duct access door, insulated		ea					
	Duct accessories, duct access door, insulated		ea					

CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

NYC DDC Department of Design and Construction

DDC ID: CO2908CHJ-2
 Sponsor Agency: DGS

Project:
 Location:
 Bidder:

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Blank-off existing linear diffusers at Level 2 Southside		ls					
	Subtotal							
23 2123	Pumps							
	CWP-1&2		ea					
	CWP-3&4		ea					
	Subtotal							
23 2500	Pipe Cleaning and Chemical Water Treatment							
	Chemical treatment system/maintenance/contract		ls					
	Subtotal							
23 2600	Water Specialties							
	Circuit setter balance valve, bronze body, threaded, 1" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 1-1/2" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 2" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 2-1/2" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 4" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 5" pipe size		ea					
	ET-1		ea					
	ET-2		ea					
	Strainer, Y type, bronze body, screwed, 125 lb, 1" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb, 1-1/4" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb, 1-1/2" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb, 2" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb, 2-1/2" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb, 4" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb, 5" pipe size		ea					
	Subtotal							
23 2710	Dry Coolers							
	DRC-R-1		ea					
	DRC-R-2							

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CONTRACTOR'S BID BREAKDOWN FORM
 CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

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DDC ID: CO290BCHJ-2
 Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	DRC-R-3							
	Subtotal							
23 3313	Dampers							
	Duct accessories, fire damper, curtain type, vertical, 10" x 8", UL label, 1-1/2 hr rated (remove and replace)		ea					
	Duct accessories, fire damper, curtain type, vertical, 12" x 10", UL label, 1-1/2 hr rated		ea					
	Duct accessories, fire damper, curtain type, vertical, 20" x 20", UL label, 1-1/2 hr rated		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 14" x 14", UL label		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 40" x 18", UL label		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 22" x 16", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 22" x 18", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 30" x 18", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 36" x 26", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 20" x 8", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 12" x 8", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 42" x 10", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 34" x 14", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 28" x 9", UL label, (remove and replace)		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: Material & Labor
	Duct accessories, fire/smoke combination damper, louver type, vertical, 32" x 16", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 32" x 32", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 40" x 17", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 24" x 10", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, vertical, 34" x 14", UL label, (remove and replace)		ea					
	Duct accessories, fire/smoke combination damper, damper operator motor, 24 or 120 volt		ea					
	Duct accessories, volume damper, 6" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 8" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 10" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 12" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 12" x 8" (cut into existing duct)		ea					
	SA-D		ea					
	SA-I		ea					
	Subtotal							
23 3610	Air Outlets and Inlets							
	CD-A		ea					
	CR-A		ea					
	RG-A		ea					
	RG-B		ea					
	Rotate existing diffuser		ea					
	Replace existing 4-way diffuser with 2-way diffuser		ea					
	Subtotal							
23 5210	Piping and Accessories							
	Pipe/fits, copper, tubing, solder, 3/4" diameter, type L, includes coupling and clevis hanger assembly 10' O.C.		lf					

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	Pipe/ftgs, copper, tubing, solder, 1" diameter, type L, includes coupling and clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 1-1/4" diameter, type L, includes coupling and clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 1-1/2" diameter, type L, includes coupling and clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 2" diameter, type L, includes coupling and clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, steel, galvanized, threaded, 3/4", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' O.C.		If					
	Pipe/ftgs, steel, galvanized, threaded, 1", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' O.C.		If					
	Pipe/ftgs, steel, black, welded, 2-1/2" diameter, schedule 40, Spec. A-53, includes yoke and roll hanger assembly sized for covering, 10' O.C.		If					
	Pipe/ftgs, steel, black, welded, 3" diameter, schedule 40, Spec. A-53, includes yoke and roll hanger assembly sized for covering, 10' O.C.		If					
	Pipe/ftgs, steel, black, welded, 4" diameter, schedule 40, Spec. A-53, includes yoke and roll hanger assembly sized for covering, 10' O.C.		If					
	Pipe/ftgs, steel, black, welded, 5" diameter, schedule 40, Spec. A-53, includes yoke and roll hanger assembly sized for covering, 10' O.C.		If					
	Cap/plug existing piping - 1"		ea					
	Cap/plug existing piping - 1-1/4"		ea					
	Cap/plug existing piping - 1-1/2"		ea					
	Cap/plug existing piping - 2"		ea					
	Cap/plug existing piping - 2-1/2"		ea					
	Cap existing piping 2-1/2"		ea					
	Subtotal							
23 6200	Water Cooled Self-Contained Air-Conditioning Units							
	WC-22 thru 26		ea					
	WC-27		ea					
	WC-21 (not scheduled)		ea					
	Subtotal							

Project:

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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: Material & Labor
23 7305	Fans							
	MUAF-10-1		ea					
	EF-10-1		ea					
	TF-7-1 (includes VFD)		ea					
	TF-XX-20/30		ea					
	TF-XX-80/90		ea					
	TF-XX-00/10		ea					
	TF-XX-40/50		ea					
	TF-XX-60/70		ea					
	Subtotal							
23 8500	Variable Frequency Controllers							
	Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA-1		ea					
	Subtotal							
26 0000	ELECTRICAL	1.00	ls	\$341,809.40	\$341,809.40	\$634,789.00	\$634,789.00	\$976,598.40
26 0002	Electrical Special Conditions							
	Safety switches, 250 or 600 V, 30 amp, electrical demolition, remove, including disconnection of wire and conduit terminations		ea					
	Wire, THW-THWN-THHN, #12, electrical demolition, removed from in place conduit, to 15' high		clif					
	Wire, THW-THWN-THHN, 1/0, electrical demolition, removed from in place conduit, to 15' high		clif					
	Wire, THW-THWN-THHN, 500 kcmil, electrical demolition, removed from in place conduit, to 15' high		clif					
	Existing conduit, 3-1/2", abandon in place and seal, allow		ls					
	Disconnect existing feeder serving panel EPP-10AC, allow		ls					
	Variable frequency drive, 460 V, for 10 HP motor size, electrical demolition, remove		ea					
	Misc. equipment work		ls					
	Fire alarm system cable, #14/2C		clif					
	Detection system, control module		ea					

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	Detection system, relay module		ea					
	Detection system, control module, disconnect/reconnect		ea					
	Start-up/testing/commissioning/testing		ls					
	Subtotal							
26 0005	Access Doors in General Construction							
	Furnish access doors		ls					
	Subtotal							
26 0250	System Identification							
	System identification, tagging		ls					
	Subtotal							
26 0265	Testing, Adjusting and Balancing							
	TAB		ls					
	Subtotal							
26 0280	Equipment Connections and Coordination							
	Motor connections, flexible conduit and fittings, up to 1 HP motor		ea					
	Motor connections, flexible conduit and fittings, 1.5 HP motor		ea					
	Motor connections, flexible conduit and fittings, 3-phase, sealtite, 460 volt, up to 20 HP motor		ea					
	Motor connections, flexible conduit and fittings, 1-phase, 115 volt, up to 1 HP motor, disconnect/reconnect		ea					
	Subtotal							
26 0290	Ceiling, Floor and Wall Electrical Penetration Fire Seals							
	Drilling/cutting/patching/firestopping		ls					
	Subtotal							
26 0519	600 Volt Wire and Cable							
	Termination, cable, #1/0		ea					
	Termination, cable, #500 MCM		ea					

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Project:

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DDC ID: CO2908CHJ-2
 Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
	Wire, copper, solid, 600 volt, #12, type THWN-THHN, in raceway		cif					
	Wire, copper, solid, 600 volt, #10, type THWN-THHN, in raceway		cif					
	Wire, copper, stranded, 600 volt, #8, type THWN-THHN, in raceway		cif					
	Wire, copper, stranded, 600 volt, #6, type THWN-THHN, in raceway		cif					
	Wire, copper, stranded, 600 volt, 500 MCM, type THWN-THHN, in raceway		cif					
	Subtotal							
26 0526	Grounding System							
	Grounding Systems		ls					
	Subtotal							
26 0533	Raceways and Boxes							
	Conduit, hangers and supports		ls					
	Rigid galvanized steel conduit, 3/4" diameter, to 15' H, incl 2 terminations, 2 elbows and 11 beam clamps per 100 LF		lf					
	Rigid galvanized steel conduit, 3-1/2" diameter, to 15' H, incl 2 terminations, 2 elbows and 11 beam clamps per 100 LF		lf					
	Electric metallic tubing (EMT), 3/4" diameter, to 15' H, incl 2 terminations, 2 elbows and 11 beam clamps per 100 LF		lf					
	Outlet boxes, pressed steel, 4-11/16" square, 2-1/8" deep, 3/4" to 1-1/4" KO		ea					
	Outlet boxes, pressed steel, covers, blank, 4-11/16" square		ea					
	Outlet boxes, cast, FDC, 1 gang, 3/4" hub, with weatherproof cover		ea					
	Pull boxes, sheet metal, type SC, 24" W x 24" H x 8" D, NEMA 1		ea					
	Pull boxes, cast iron, water and dust tight, 24" L x 24" W x 10" D, NEMA 4, surface mounted		ea					
	Subtotal							
26 2726	Wiring Devices							
	Duplex receptacle, ground fault interrupting, 20 amp		ea					
	Subtotal							
26 2813	Fuses (600V and Less) (included with other sections)							

NYC DDC Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM
CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project:

Location:

Bidder:

DDC ID: CO290BCHJ-2
Sponsor Agency: DGS

CSI NUMBER	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Material & Labor
26 2816	Disconnect Switches							
	Safety switches, heavy duty, 3 pole, nonfusible, 600 v., 300 amp, NEMA 1		ea					
	Safety switches, heavy duty, 3 pole, nonfusible, 600 v., 300 amp, NEMA 3R		ea					
	Safety switches, heavy duty, 3 pole, nonfusible, 600 v., 300 amp, NEMA 3R		ea					
	Safety switch with thermal overload		ea					
	Subtotal							
26 2913	Installation of Individual Motor Controllers							
	Motor starter, 1.5 HP, NEMA 1, incl enclosure		ea					
	Variable frequency drives, enclosed, 460 volt, up to 3 HP motor size, NEMA 1, install only		ea					
	Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA 1, install only		ea					
	Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA 1, install only		ea					
	Subtotal							
26 4113	Lightning Protection							
	Air terminal and base, copper, 1/2" dia x 12", over 75' high		ea					
	Lightning protection cable, copper, 375 lb per thousand ft., over 75' high		lf					
	Splice new lightning protection copper conductor to existing system		ls					
	Subtotal							
					\$3,830,054.20		\$7,109,100.20	\$10,939,154.40
TOTAL CONTRACT 1 - GENERAL CONSTRUCTION WORK								

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: Lanmark Group, Inc.

DDC Project Number: CO290 BCHJ-2

Company Size: _____ Ten (10) employees or less

Greater than ten (10) employees

Company has previously worked for DDC YES _____ NO

2. Type(s) of Construction Work

TYPE OF WORK	LAST 3 YEARS	THIS PROJECT
General Building Construction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Residential Building Construction	_____	_____
Nonresidential Building Construction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heavy Construction, except building	_____	_____
Highway and Street Construction	_____	_____
Heavy Construction, except highways	_____	_____
Plumbing, Heating, HVAC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Painting and Paper Hanging	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Electrical Work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Masonry, Stonework and Plastering	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Carpentry and Floor Work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Roofing, Siding, and Sheet Metal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Concrete Work	<input checked="" type="checkbox"/>	_____
Specialty Trade Contracting	<input checked="" type="checkbox"/>	_____
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
<u>2015</u>	<u>0.94</u>	_____
<u>2014</u>	<u>0.84</u>	_____
<u>2013</u>	<u>0.90</u>	_____

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

4. OSHA Information:

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

YES NO Contractor has had an incident requiring OSHA notification within 8 hours (all work-related fatalities) or an incident requiring OSHA notification within 24 hours (all work-related inpatient hospitalizations, all amputations and all losses of an eye).

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

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

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

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

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

see attached

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2015	99,688	1.8
2014	109,608	1.8
2013	159,378	3.9

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

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

5. Safety Performance on Previous DDC Project(s)

YES NO Contractor previously audited by the DDC Office of Site Safety.
 DDC Project Number(s): LB104KEN, _____, _____

YES NO Accident on previous DDC Project(s).
 DDC Project Number(s): LB104KEN, _____, _____

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

Date: 6/14/2016 By: [Signature]
 (Signature of Owner, Partner, Corporate Officer)
 Title: President

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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
Bronx Civil Supreme Courthouse 851 Grand Concourse Bronx NY	Prime	11,661,620.79	10/2012	LiRo Group Michael Bendetti (516) 214-8138	John Phillips Mitchell/Giurgola Architects (212) 663-4000
New Kensington Branch Library 4211 18th Avenue Brooklyn NY	Prime	8,962,246.75	7/2012	NYC DDC Jeff Sandick (718) 391-1076	Sen Architects Robin Sen (212) 604-9522
PS 132(X) Interior Wall Replacement 1245 Washington Avenue Bronx NY	Prime	5,897,073.42	8/31/2012	NYC SCA Matt Santos (917) 418-9410	Purcell Architects, PC Voytek Orzechowski (212) 921-1177
PS 204(K) Exterior Masonry, Parapets 8101 15th Avenue Brooklyn NY	Prime	15,255,956.19	12/11/2015	NYC SCA Bassam Abdu (347) 893-0082	Nelligan White Architects Aditel Puplampu (212) 675-0500
PS 61(M) Windows, Exterior Masonry 610 East 12th Street New York NY	Prime	8,728,292.91	4/6/2014	NYC SCA Constantin Dumitrescu (917) 217-1152	NYC SCA Jose Ricardo (718) 752-5688

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
Elevator, Roofing, Facade Upg. 130 Livingston Plaza Brooklyn NY	Prime	24,517,850.00	13,905,386.30	15,280,080.00	07/2017	NYCTA Carmine DiCosmo (732) 598-9592	NYCTA Robert Palmieri (646) 252-4094
WTC Transit Hall World Trade Center New York NY	Prime	11,672,358.37	7,360,985.81	795,210.22	09/2016	Tishman/PANYNJ Jonathan Hish (646) 271-3125	Downtown Design Partnership
Bronx Hall of Justice 265 E 161st Street Bronx NY	Prime	17,429,753.00	8,252,067.37	16,945,782.09	10/2017	NYC DDC Larry Shim (718) 391-1126	R. Vinoly Architects Elizabeth Geldres (212) 924-5060

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
None					

**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: Brooklyn, New York
6/14, 2016

Eleftherios Kougentakis
SIGNATURE
Eleftherios Kougentakis
PRINTED NAME
President
TITLE

Sworn to before me this
14th day of June 2016

Joanna Sadowska
Notary Public

JOANNA SADOWSKA
NOTARY PUBLIC - STATE OF NEW YORK
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 2018

Dated:
6/14/2016

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

PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION

7. 20-4557644 info@lanmarkgc.com
Employer Identification Number or Federal Tax I.D. Email Address
8. Lanmark Group, Inc.
Company Name
9. 2125 Moll Ave., Brooklyn NY 11234
Company Address and Zip Code
10. Eleftherios Kougentakis (347) 462 4000
Chief Operating Officer Telephone Number
11. George Manouselakis (347) 462 4000
Designated Equal Opportunity Compliance Officer Telephone Number
(If same as Item #10, write "same")
12. same
Name of Prime Contractor and Contact Person
(If same as Item #8, write "same")

13. Number of employees in your company: 39

14. Contract information:

(a) NYC DDC Contracting Agency (City Agency) (b) 11,128,645.40 Contract Amount

(c) 85016B0125 Procurement Identification Number (PIN) (d) _____ Contract Registration Number (CT#)

(e) TBD Projected Commencement Date (f) TBD Projected Completion Date

(g) Description and location of proposed contract:

Bronx Hall of Justice Remediation
265 East 161st Street, Bronx NY 10456

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

If yes, attach a copy of certificate.

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

If yes, attach a copy of certificate.

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

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

If yes,

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

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

If yes,

(a) Name and address of OFCCP office.

(b) Was a Certificate of Equal Employment Compliance issued within the past 36 months?
Yes ___ No

If yes, attach a copy of such certificate.

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

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

(d) Were any deficiencies found? Yes ___ No ___

If yes, attach a copy of such findings.

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

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

PART II: DOCUMENTS REQUIRED

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

- (a) Health benefit coverage/description(s) for all management, nonunion and union employees (whether company or union administered)
- (b) Disability, life, other insurance coverage/description
- (c) Employee Policy/Handbook
- (d) Personnel Policy/Manual
- (e) Supervisor's Policy/Manual
- (f) Pension plan or 401k coverage/description for all management, nonunion and union employees, whether company or union administered
- (g) Collective bargaining agreement(s).
- (h) Employment Application(s)
- (i) Employee evaluation policy/form(s).
- (j) Does your firm have medical and/or non-medical (i.e. education, military, personal, pregnancy, child care) leave policy?

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

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

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

All I-9 forms are kept in the accounting dept. in the main office

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

If yes, is the medical examination given:

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

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

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

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

see attached, page 1.2

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

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

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

If yes, please attach a copy of this policy. see attached

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

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

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

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

If yes, attach a log. See instructions.

29. Are there any jobs for which there are physical qualifications? Yes No ___

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

Field employees and laborers must be able
to lift heavy materials and tools

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

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

NOTARY PUBLIC
STATE OF CALIFORNIA
COMMISSION EXPIRES 11/15/11

SIGNATURE PAGE

I, (print name of authorized official signing) Eleftherios Kougentakis 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.

Lanmark Group, Inc
Contractor's Name

Eleftherios Kougentakis President
Name of person who prepared this Employment Report Title

Eleftherios Kougentakis President
Name of official authorized to sign on behalf of the contractor Title

(347) 462 4000
Telephone Number

Eleftherios Kougentakis 6/14/2016
Signature of authorized official Date

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

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

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

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

Only original signatures accepted.

Sworn to before me this 14th day of June 20 16

Joanna Siodorska Eleftherios Kougentakis 6/14/2016
NOTARY PUBLIC - STATE OF NEW YORK Authorized Signature Date
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 2018

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

June 16, 2016

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

CO290BCHJ-2

Bronx Hall of Justice Remediation – Bid Package 2

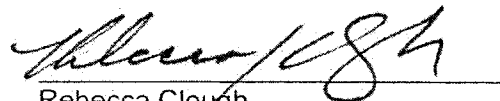
This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

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

1. **The Bid Opening for the contract described below scheduled for June 21, 2016, at 2:00 pm is rescheduled to June 24, at 2:00 pm.**
Contract #1 – General Construction Work
2. **Bidders Questions and Responses to Questions:**
See Attachment A.
3. **Revisions to Volume 2:**
See Attachment B.
4. **Revisions to the Specifications:**
See Attachment C.
5. **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) 391-3170, (718) 391-1016, or by fax at (718) 391-2615.



Rebecca Clough
Assistant Commissioner
Courts/ Correctional Institutions/
Health Facilities

Lanmark Group, Inc.
Name of Bidder

By: *E. J. King*

NYC AGENCY RENOVATION & REHAB CITY OWNED
BUILDINGS/STRUCTURES PLA

Project Labor Agreement -- Letter of Assent

Dear:

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

The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as *Bronx Hall of Justice* and located at *265E 161st Bronx NY* (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

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

Provide description of the Work, identify craft jurisdiction(s) and all contract numbers below:

NYC AGENCY RENOVATION & REHAB CITY OWNED
BUILDINGS/STRUCTURES PLA

Dated: 6/30/2016

Lanmark Group, Inc.
(Name of Contractor or subcontractor)

Lanmark Group, Inc.
(Name of CM; GC; Contractor or
Higher Level Subcontractor)

E. M. Kougentakis
(Authorized Officer & Title) President
2125 Mill Ave, Brooklyn NY 11234
(Address)

(347) 462 4000; fax (347) 462 9001
(Phone) (Fax)

Contractor's State License
N/A

Sworn to before me this
30th day of June, 2016
Joanna Sadowska

Notary Public **JOANNA SADOWSKA**
NOTARY PUBLIC - STATE OF NEW YORK
NO. 01SA6045963
QUALIFIED IN RICHMOND COUNTY
MY COMMISSION EXPIRES AUG. 7, 20 18

NOTICE TO BIDDERS:

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

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

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

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

- **COMPLIANCE WITH HIRENYC AND REPORTING REQUIREMENTS:** The Hiring and Employment Rider shall apply to contracts valued at \$1 million or more for all goods, services and construction except human services contracts that are subject to the Public Assistance Hiring Commitment Rider. The Rider describes the Hire NYC process and obligations, including reporting requirements throughout the life of the contract. The Hire NYC process requires contractors to enroll with the Hire NYC system within thirty days after the registration of the contract subject to this solicitation, to provide information regarding all entry to mid-level job opportunities arising from this contract and located in New York City, and to agree to interview qualified candidates from HireNYC for those opportunities. The Rider also includes reporting requirements unrelated to HireNYC.

SPECIAL NOTICE TO BIDDERS

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

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

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

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

PRE BID QUESTIONS (PBQs):

- **Please be advised that PBQs should be submitted to the Agency Contact Person at least five (5) business days (by 5:00 P.M. EST) prior to the bid opening date as indicated in ATTACHMENT 1 – BID INFORMATION, page 22, VOLUME 1 of 3 of this BID PACKAGE.**

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**BID BOOKLET
PART A**

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PROJECT ID: CO290BCHJ-2

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

BID BOOKLET

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

SPECIAL NOTICE TO BIDDERS

BID SUBMISSION REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

Special Notice to Bidders – Proprietary Items

- A. General: A proprietary item required for the Project is specified below. The contractor is required to provide and install such proprietary item. The Contractor must provide the specified item from the designated manufacturer. Substitutions are not permissible and will not be approved. More detailed information regarding the item is set forth in the Specifications. Such information includes item description, as well as requirements for installation and related materials.
- B. Payment: For the required proprietary item, an allowance amount is indicated. The allowance provides a stipulated amount to reimburse the Contractor for the purchase of the proprietary item from the designated manufacturer. Payment from the allowance shall be limited to the purchase price of the specified proprietary item and shall exclude any costs above and beyond the purchase price. Payment from the allowance shall not include any of the following costs with respect to the specified proprietary item: (1) any mark-up for the Contractor's overhead and profit, (2) any costs for transportation, including delivery, shipping or special handling costs, (3) any costs for installation, and (4) any costs for related materials. Payment for the specified proprietary item shall be based on the invoice actually provided by the manufacturer.
- C. Bid Form: A total allowance amount for the purchase of all required proprietary items is set forth on the Bid Form. In preparing the lump sum portion of its bid, the Contractor shall:
- (1) Exclude from its bid any costs for the purchase of the proprietary items, and
 - (2) Include in its bid any costs above and beyond the purchase price, including without limitation, costs for transportation, delivery, installation, related materials and overhead.
- D. Required Proprietary Item(s):

CONTRACT NO. 1:

1. Proprietary Item:	Building Management System
Specification Section:	230923
Manufacturer:	Trane
Allowance Amount:	\$174,491

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SPECIAL EXPERIENCE REQUIREMENTS

Special Experience Requirements apply as indicated below.

Bidder(s):	General Construction	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
Specific Areas of Work:	General Construction	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
Manufacturer(s):	General Construction	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO

- (A) **EXPERIENCE REQUIREMENTS FOR THE BIDDER:** The special experience requirements set forth below apply to the bidder(s) indicated above. Compliance with such special experience requirements will be determined solely by the City prior to an award of contract. Failure to comply with the special experience requirements will result in the rejection of the bid as non-responsive.
- The bidder must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.
- (B) **QUALIFICATION FORM:** For each project submitted to demonstrate compliance with the special experience requirements, the bidder(s) indicated above must complete the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.
- (C) **CONDITIONS:** The City may, in determining compliance with the special experience requirements set forth above, consider prior projects completed by principal(s) or other employees of the bidder while affiliated with another entity, subject to the conditions set forth below.
- Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with this special experience requirement must have held the following: (a) a significant management role in the prior entity with which he/she was affiliated, and (b) a significant management role in the entity submitting the bid for a period of six months or from the inception of the bidding entity. If the bidder is relying on the prior experience of a principal or employee, it must submit documentation confirming the position held by such principal or employee in the prior entity, as well as in the bidding entity.
 - The bidder may not rely on the experience of its principals or other employees to demonstrate compliance with any other requirements, including without limitation, financial requirements or requirements for a specified minimum amount of annual gross revenues.
- (D) **JOINT VENTURES:** In the event the bidder is a joint venture, at least one firm in the joint venture must meet the above described experience requirements.
- (E) **EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK:** The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor or subcontractor that will perform these specific areas of work. If the bidder intends to perform these specific areas of work with its own forces, it must demonstrate compliance with the special experience requirements. If the bidder intends to subcontract these specific areas of work, its proposed subcontractor(s) must demonstrate compliance with the special experience requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City. The bidder is advised to carefully review these special experience requirements prior to submitting its bid, as such experience requirements will be strictly enforced.

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

General Construction

- Section 057010: Decorative Metal
- Section 075520: Modified Bituminous Roofing Repairs
- Section 095113: Acoustical Panel Ceilings

- (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.

a. The contractor or subcontractor that will perform the specific areas of work specified above (except Section 075520) 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. For Section 075520, the contractor or subcontractor performing the work of these sections must be a company regularly engaged in performing roofing projects with its own workforce and have successfully completed in a timely fashion at least three (3) roofing projects similar in scope, size and type to the required work within the last three (3) consecutive years prior to the bid opening. At least one of those projects must have been performed within the last twelve (12) months. The three (3) qualifying projects must have utilized one or more of the roofing systems specified for the project being bid herein, been installed by the contractor's or subcontractor's company utilizing its own workforce and must have qualified for, and have been issued, the warranty provided by the manufacturer of the roofing system. In addition, the contractor or subcontractor must be a certified or authorized installer for at least one of the manufacturer's roofing systems specified herein and shall submit proof of same.

- (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.

a. 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.

b. For Sections 075520, the contractor or subcontractor must specify, for each qualifying project submitted, the type of roofing system utilized and provide proof that the manufacturer's warranty for that project was issued. 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 required to be provided by the contractor or subcontractor on the Qualification Form is actually 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 057010: Decorative Metal

(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.

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Qualification Form

Project ID: CO290BCHJ-2

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

Name of Contractor: _____

Name of Project: _____

Location of Project: _____

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

Name: _____

Title: _____ Phone Number: _____

Brief description of work completed: _____

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

Amount of Contract: _____

Date of Completion: _____

Name of Contractor: _____

Name of Project: _____

Location of Project: _____

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

Name: _____

Title: _____ Phone Number: _____

Brief description of work completed: _____

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

Amount of Contract: _____

Date of Completion: _____

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MWBE PROGRAM

M/WBE UTILIZATION PLAN

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

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

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

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

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

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

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NOTICE TO ALL PROSPECTIVE CONTRACTORS

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

ARTICLE I. M/WBE PROGRAM

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

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

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

PART A

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at zhangji@ddc.nyc.gov or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

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

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

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

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

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

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

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

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

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

PART B: MISCELLANEOUS

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE** Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE** Utilization Plan.
2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.
3. DSBS is available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.
4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).
5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.
2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.
3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency may determine that one of the following actions should be taken:
 - (a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
 - (b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
 - (c) making a finding that the Contractor is in default of the Contract;
 - (d) terminating the Contract;
 - (e) declaring the Contractor to be in breach of Contract;
 - (f) withholding payment or reimbursement;
 - (g) determining not to renew the Contract;
 - (h) assessing actual and consequential damages;

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

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

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

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

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

Tax ID #: _____

APT E-
PIN#: 85016B0125

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 # 85016B0125 FMS Project ID#: CO290BCHJ-2

Project Title/Agency Bronx Hall of Justice Remediation- Bid Package 2

PIN # 8502014CT0002C

Bid/Proposal Response Date: TO BE DETERMINED

Contracting Agency Department of Design and Construction

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

Contact Person Norma Negron Title MWBE Liaison & Compliance Analyst

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

Project Description *(attach additional pages if necessary)*

The project work includes Post Construction Remediation.

M/WBE Participation Goals for Services

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

Prime Contract Industry: Construction

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

Line 1

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

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Tax ID #: _____

APT E-

PIN#: 85016B0125

SCHEDULE B - Part II: M/WBE Participation Plan

Part II to be completed by the bidder/proposer:

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

Section I: Prime Contractor Contact Information	
Tax ID # _____	FMS Vendor ID # _____
Business Name _____	Contact Person _____
Address _____	
Telephone # _____	Email _____

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

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

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

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

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

MBE WBE

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

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

Section IV: General Contract Information

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

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

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

✓ Scopes of Subcontract Work

Section V: Vendor Certification and Required Affirmations

I hereby:

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

Signature _____
Print Name _____

Date _____
Title _____

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

Contract Overview

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

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

_____ % Agency M/WBE Participation Goal

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

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

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

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

References

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

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

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

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

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

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

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

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

Signature: _____ Date: _____
 Print Name: _____ Title: _____

Shaded area below is for agency completion only

AGENCY CHIEF CONTRACTING OFFICER APPROVAL
 Signature: _____ Date: _____

CITY CHIEF PROCUREMENT OFFICER APPROVAL
 Signature: _____ Date: _____

Waiver Determination

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

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

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

PROJECT ID: CO290BCHJ-2

**Bronx Hall of Justice Remediation- Bid Package 2
265 East 161st Street
Bronx 10456**

Name of Bidder: _____

Date of Bid Opening: _____

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

Place of Business of Bidder: _____

Bidder's Telephone Number: _____ Bidder's Fax Number: _____

Bidder's Email Address: _____

Residence of Bidder (If Individual): _____

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

Names of Partners

Residence of Partners

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

Organized under the laws of the State of _____

Name and Home Address of President: _____

Name and Home Address of Secretary: _____

Name and Home Address of Treasurer: _____

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BID FORM

The above-named Bidder affirms and declares:

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

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

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

6. Compliance Report

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

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

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

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

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

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

Section V: Vendor Certification and Required Affirmations:

I hereby:

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

BID FORM

PROJECT ID: CO290BCHJ-2

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

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

Total Price for
Material Sold and
Delivered

Total Price For
Labor

\$ _____ +

\$ _____

Total Price for Item A= \$ _____

- B. **ALLOWANCE for Incidental Asbestos Abatement** \$15,000.00
(Section 028013 of the Specifications)
- C. **AMOUNT for Proprietary Items (pages 2a)** \$174,491.00
- TOTAL BID PRICE (Add A + B + C)** \$ _____
(a/k/a BID PROPOSAL)

BIDDER'S SIGNATURE AND AFFIDAVIT

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

Bidder: _____

By: _____
(Signature of Partner or corporate officer)

Attest: _____
(Corporate Seal) Secretary of Corporate Bidder

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

THIS PAGE INTENTIONALLY LEFT BLANK

BID FORM (TO BE NOTARIZED)

AFFIDAVIT WHERE BIDDERS IS AN INDIVIDUAL

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:

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

(Signature of the person who signed the Bid)

Subscribed and sworn to before me this
_____ day of _____,

Notary Public

AFFIDAVIT WHERE BIDDERS IS A PARTNERSHIP

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:

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

(Signature of Partner who signed the Bid)

Subscribed and sworn to before me this
_____ day of _____,

Notary Public

AFFIDAVIT WHERE BIDDERS IS A CORPORATION

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:

I am the _____ of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at _____.

I have knowledge of the several matters therein stated, and they are in all respects true.

(Signature of Corporate Officer who signed the Bid)

Subscribed and sworn to before me this
_____ day of _____,

Notary Public

AFFIRMATION

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

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

Full Name of Bidder: _____
Address: _____
City: _____ State: _____ Zip Code: _____

CHECK ONE BOX AND INCLUDE APPROPRIATE NUMBER:

- A - Individual or Sole Proprietorship *
SOCIAL SECURITY NUMBER

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

- C - Corporation
EMPLOYER IDENTIFICATION NUMBER

By: _____
Signature:

Title: _____

If a corporation, place seal here

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

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

BIDDER'S IDENTIFICATION OF SUBCONTRACTORS

NOTICE TO BIDDERS

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

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

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

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

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

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

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

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

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

BIDDER'S IDENTIFICATION OF SUBCONTRACTORS

Project ID: CO290BCHJ-2

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

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

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

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

(Bidder's Signature) (Print Name)

(Address)

(Title) (Phone #) (Fax#) (Date)

BID BOND 1
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, _____

hereinafter referred to as the "Principal", and _____

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

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

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

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

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

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

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

BID BOND 2

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

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

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

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

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

(Seal)

Principal (L.S.)

By: _____

(Seal)

Surety

By: _____

BID BOND 3

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

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

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

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

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

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

Notary Public

AFFIX ACKNOWLEDGEMENTS AND JUSTIFICATION OF SURETIES

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BID BREAKDOWN

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

X YES NO

Limitations on Use of Bid Breakdown:

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

Instructions for Preparing Bid Breakdown:

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

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**Department of
Design and
Construction**

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Bronx Hall of Justice Remediation-Bid Package 2

Location: 265 East 161st Street, Bronx, NY 10456

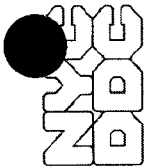
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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							
	Temporary Power		ls					
	Temporary Heat		ls					
	Security Guards		ls					
	Subtotal							
02 0000	EXISTING CONDITIONS							
02 4119	Selective Demolition							
	Selective demolition, remove exist. drywall for replacement of fire/smoke dampers, excl re-framing, loading and disposal - Item C		loc					
	Selective demolition, remove exist. Doors, frames & hdwr @ AV Closets - Item F		rooms					
	Selective demolition, remove exist. drywall for ductwork, excl re-framing, loading and disposal - Item 2		loc					
	Selective demolition, cutout, per layer of 5/8" thick drywall, excludes re-framing, loading and disposal - Item 3		ea					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item E		week					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item F		week					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 2		week					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 10		week					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item C		week					

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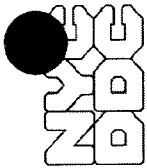
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 13		wk					
	Dumpster, 20 c.y., 8 ton capacity, weekly rental, includes one dump per week, cost added to demolition cost - Item 3		wk					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item E		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item C		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item F		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item 2		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item 3		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item 10		cy					
	Rubbish handling, 100' haul, load, dump & retrun, wheeled, cost to be added to demolition cost - Item 13		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item E		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item F		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item C		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 2		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 3		cy					
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 10		cy					

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CONTRACT 1 - GENERAL CONSTRUCTION WORK

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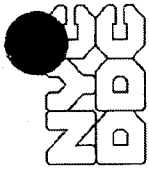
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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
	Rubbish handling, in elevator, cost to be added per every 10 floors to demolition cost - Item 13		cy					
	Selective demolition, saw cutting, shaft wall - Item E		lf					
	Selective demolition, saw cutting, partition wall for ductwork - Item 2		lf					
	Concrete core drilling, reinforced concrete slab, up to 6" th slab, incl bit cost, layout & set up time at Roof for Ductwork - Item 3		ea					
	Remove existing flashing & roofing for ductwork to new Fans - Item 3		loc					
	Demolition of exist. shaft wall to install new pipes - Item E		sf					
	GWB infill demolition - remove gypsum board, insulation & stud - Item 10		sf					
	Cutting & patching, painting at exist. Walls for electrical work for new Fans - Item F		loc					
	Laborer - (2 men daily detailed clean-up for full duration)		months					
	Subtotal							
03 0000	CONCRETE							
03 7330	Concrete Repair Work (included w/ other sections)							
05 0000	METALS							
05 1200	Structural Steel Framing							
	Steel Dunnage		ls					
	Subtotal							
05 7010	Decorative Metal							
	Aerial lift for Shadow Box work - Item 10		mon					
	New aluminum vertical tubes, painted - Item 10		lf					

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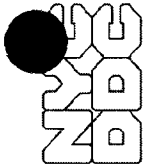
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 aluminum trim at vertical tubes and window openings - Item 10		sf					
	New aluminum frame at bottom of shadowbox - Item 10		lf					
	Inspect & repair exist. shadow box metal panel		loc					
	Subtotal							
07 0000	THERMAL AND MOISTURE PROTECTION							
07 2110	Thermal Insulation							
	Rockwool insulation around mullion, approx. 3 layers - Item 10		sf					
	Blown-in insulation, ceilings, with open access, cellulose, 3" thick, 9th FL - Item 3		sf					
	Blown-in insulation, ceilings, with open access, cellulose, 5" thick, 7th & 8th FL - Item 3		sf					
	Temporary Protection of Area/ Clean-up - Item 3		ls					
	Subtotal							
07 5520	Modified Bituminous Roofing Repairs							
	Waterproofing at new ductwork/ fans - Item 3		ls					
	Subtotal							
07 8110	Fireproofing Patching and Repairs							
	Repair of fire stopping at existing penetrations, gaps and breaches in the shaft wall - Item 3		ls					
	Subtotal							
07 9200	Joint Sealers							
	Sealant at glazing, wet seal & dry gasket - Item 13		loc					
	Silicone sealant @ Jt. btw exist. mullion & shadow box panel - Item 10		lf					
	Subtotal							

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Bidder: _____

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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
08 0000	OPENINGS							
08 1112	Steel Doors							
	Doors, double w/louvers, incl frame & hardware mods, 6' x 7' opg.		loc					
	Subtotal							
08 3113	Access Doors and Frames							
	Doors, access, fire rated, metal, 24" x 24"		ea					
	Installation of MEP access doors		ls					
	Subtotal							
08 7100	Door Hardware (included w/ 081112)							
08 8811	Glass and Glazing Repairs							
	Inspect & Clean glazing pockets of silicone and broken glass - Item 13		loc					
	Remove retrofit alum. framing and plexiglas panel - Item 13		loc					
	G-1, Tempered clear glass, 1/2" thick, reinstall snap-on cover - Item 13		sf					
	Temp protection		loc					
	Subtotal							
09 0000	FINISHES							
09 2600	Gypsum Board Assemblies							
	Gypsum wallboard, repairs, cut square, patch, sand and finish, holes - Item 3		ea					
	Seal off bottom of flume chase at Basement Level - Item 3		sf					
	Metal studs for new GWB infill, 1-3/4" wide, 20 gauge, 16" O.C., includes top & bottom track - Item 10		sf					

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**Department of
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CONTRACTOR'S BID BREAKDOWN FORM

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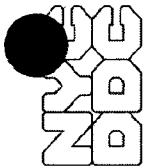
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 Gypsum wallboard for infill, taped & finished (level 4 finish), 5/8" thick - Item 10		sf					
	Remove exist. GWB ceiling/ install new GWB ceiling/paint to match		sf					
	Remove exist. GWB ceiling with reveals/ install new GWB ceiling/paint to match		sf					
	Remove exist. 2 HR GWB ceiling/ install new 2HR GWB ceiling/paint to match		sf					
	Misc. repair of damaged finishes - Item 3		ls					
	Subtotal							
09 2650	Gypsum Board Shaft Wall Assemblies							
	Shaft wall, 1"thick corbrd wall liner shaft side, 2 hour assmbl w/dbl layer, 5/8" fr rated gypsum board room side - Item E		sf					
	Infill existing duct opening, Level 10 - Item 3		opening					
	Subtotal							
09 3000	Tiling (included w/ other sections)							
09 5113	Acoustical Panel Ceilings							
	Remove & Reinstall ACT ceiling, 1'x5'		sf					
	Remove & Reinstall ACT ceiling, 2'x2'		sf					
	Remove & Reinstall ACT ceiling, 2'x4'		sf					
	Remove & Reinstall ACT ceiling, 2'x5'		sf					
	Subtotal							
09 5114	Security Ceilings							
	Remove & reinstall Metal Security Ceiling		sf					
	Subtotal							

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CONTRACTOR'S BID BREAKDOWN FORM

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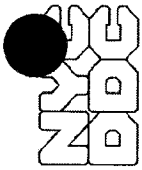
Bidder: _____

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 6500	Resilient Flooring (included w/ other sections)							
09 9100	Painting							
	Patch & paint exist. Ceiling @ dampers, zero voc latex, primer coat, smooth finish, roller - Item C		sf					
	Paint walls after patching, zero voc latex, primer coat, smooth finish, roller - Item 3		sf					
	Paint walls after patching, zero voc latex, primer coat, smooth finish, roller - Item E		sf					
	Paint walls after patching, zero voc latex, 2 coats, smooth finish, roller - Item 3		sf					
	Paint walls after patching, zero voc latex, 2 coats, smooth finish, roller - Item 10		sf					
	Misc. painting- Item 10		ls					
	Subtotal							
21 0000	FIRE SUPPRESSION							
21 0002	Fire Protection Special Conditions (included w/ 211313)							
21 0003	Scope of Work (included w/ 211313)							
21 0517	Sleeves and Seals for Fire Suppression Piping (included w/ 211313)							
21 0518	Escutcheons for Fire Suppression Piping (included w/ 211313)							
21 0519	Meters and Gauges for Fire Suppression Systems (included w/ 211313)							
21 0520	Piping and Fitting Materials (included w/ 211313)							

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**Department of
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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Bronx Hall of Justice Remediation- Bid Package 2

Location: 265 East 161st Street, Bronx, NY 10456

Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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
21 0523	Fire Suppression Valves (included w/ 211313)							
21 0529	Hangers, Supports, Anchors & Guides for Fire Suppression Systems (included w/ 211313)							
21 0548	Vibration & Seismic Controls For Fire Suppression Piping & Equipment (included w/ 211313)							
21 0553	Identification of Fire Suppression Piping and Equipment (included w/ 211313)							
21 0580	Access Doors In General Construction (included w/ 211313)							
21 0585	Fire Protection Firestopping (included w/ 211313)							
21 0595	Fire Protection Basic Material and Methods (included w/ 211313)							
21 0719	Insulation (included w/ 211313)							
21 1100	Fire Suppression Piping and Fitting Materials (included w/ 211313)							
21 1313	Wet Pipe Sprinkler Systems							
	Re-locate existing sprinkler head in AV closets (incl. shutdown/drain/re-fill)		ea					
	Subtotal							

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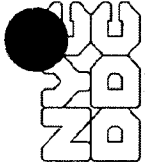
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 0000	PLUMBING							
22 0002	Plumbing Special Conditions							
	Cutting/Patching/Firestopping/CTE		Is					
	Subtotal							
22 0517	Sleeves and Sleeve Seals for Plumbing Piping (included w/ sections 221116 and 221316)							
22 0518	Escutcheons for Plumbing Piping (included w/ sections 221116 and 221316)							
22 0529	Hangers, Supports, Anchors, Guides and Seismic Restraint (included w/ sections 221116 and 221316)							
22 0553	Identification of Plumbing Piping and Equipment							
	Pipe/Valve ID		Is					
	Subtotal							
22 0590	Testing							
	Pipe testing, nondestructive hydraulic pressure test, isolate, 1 hour hold, 1" to 4" pipe, 0 - 250 LF		If					
	Subtotal							
22 0719	Insulation							
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 1/2" iron pipe size		If					
	Subtotal							

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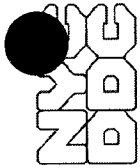
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 1116	Domestic Water Piping and Fitting Materials Pipe/ftgs, copper, tubing, solder, 3/4" diameter, type L, includes coupling & clevis hanger assembly 10' O.C. Valves, bronze, ball, 150 psi, 3/4", threaded Backflow preventr., reduced pressure principle, corrosn resistant, automatic operation, ball valves, threaded, 3/4" pipe size, includes valves and four test cocks		lf ea ea					
	Subtotal							
22 1316	Sanitary Waste and Vent Piping and Fitting Materials Pipe/ftgs, steel, galvanized, threaded, 3/4", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' OC		lf					
	Subtotal							
22 1319	Sanitary Waste Piping Specialties (included w/ section 221316)							
22 1413	Storm Drain Piping and Fitting Materials (included w/ other sections)							
22 1423	Storm Drainage Specialties (included w/ other sections)							
23 0000	HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)							
23 0002	HVAC Special Conditions Pipe, metal pipe, to 1-1/2" diam., selective demolition Pipe, metal pipe, 2" to 3-1/2" diam., selective demolition Shutdown/drain piping for demo. Ductwork, metal, steel, cut and remove existing 18x6 Existing Damper/Duct, selective demolition		lf lf ea ls 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
	Rigging		ls					
	Misc/Cutting/Patching/Firestopping		ls					
	AHU-2 - Remove/Replace Fan Section w/upgraded (includes furnishing VFD)		ea					
	Subtotal							
23 0005	Access Doors in General Construction (included w/ other sections)							
23 0200	Firestopping (included w/ section 230002)							
23 0513	Electric Motors (included w/ other sections)							
23 0523	Valves							
	Valves, bronze, ball, 150 psi, 3/4", threaded		ea					
	Valves, bronze, ball, 150 psi, 1", threaded		ea					
	Valves, bronze body, ball, 150 psi, 1-1/4", threaded		ea					
	Valves, bronze body, ball, 150 psi, 1-1/2", threaded		ea					
	Valves, bronze body, ball, 150 psi, 2", threaded		ea					
	Valves, bronze, relief, pressure & temperature, self-closing, threaded, 3/4", ASME		ea					
	Valves, bronze, relief, pressure & temperature, self-closing, threaded, 1", ASME		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb., 2-1/2"		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb., 4"		ea					
	Valves, iron body, butterfly, lug type, gear operated, 200 lb., 5"		ea					
	Valves, iron body, swing check, flanged, 125 lb., 4"		ea					
	Valves, iron body, swing check, flanged, 125 lb., 5"		ea					
	Subtotal							

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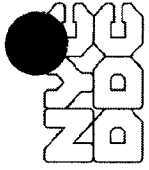
Bidder: _____

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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, Anchors and Supports (included w/ section 235210)							
23 0540	Acoustics Insulation, ductwork, board type, fiberglass liner, fire resistant, black pigmented 1 side, 3 lb. density, 1" thick		sf					
	Subtotal							
23 0548	Vibration Isolation (included w/ other sections)							
23 0553	Systems Identification Pipe/Valve ID		ls					
	Subtotal							
23 0593	Testing, Adjusting and Balancing Balancing, air, heating and ventilating equipment, in-line fan Balancing, air, rebalance as required Balancing, water, dry cooler Balancing, water cooled AC Balancing, water, main balancing cocks/valves Balancing, water, pumps Pipe testing, nondestructive hydraulic pressure test, isolate, 1 hour hold, 1" to 5" pipe, 250 - 500 LF		ea ls ea ea ea ea ea					
	Subtotal							
23 0700	Insulation Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 3/4" iron pipe size		lf					

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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
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1/2" wall, 1" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1" wall, 1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 3/4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1-1/4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1-1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 1-1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 2-1/2" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 3" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 4" iron pipe size		lf					
	Insulation, pipe covering (price copper tube one size less than I.P.S.), fiberglass with all service jacket, 1-1/2" wall, 5" iron pipe size		lf					
	Insulation, pipe covering, finishes, for .016" al jkt		sf					

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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
	Heat Trace Rooftop Piping		ls					
	Duct thermal insulation, blanket type, fiberglass, flexible, FSK facing, 1 lb. density, 1-1/2" thick		sf					
	Subtotal							
23 0810	Basic Commissioning of HVAC Systems							
	Equipment Start-up/ testing /Commissioning Coordination		ls					
	Subtotal							
23 0900	Instruments							
	Control component, gauges, pressure or vacuum, 4-1/2" dia. dial		ea					
	3/4" NPT		ea					
	Subtotal							
23 0923	Building Management and Control System (BMCS)							
	Controls - Condenser Water System		pt					
	Controls - AV Closet Fans Monitoring		pt					
	Controls/Integrate w/ Existing - Engineator		ls					
	Controls - Airflow		ls					
	Subtotal							
23 1113	Sheetmetal							
	Metal ductwr,fbrcrt rctng, supply air duct installed in shaft		lb					
	for a flexbl connect field sktchs,exclds as-built drwns and insultn		lb					
	Duct accessories, duct access door, insulated		ea					
	Duct accessories, duct access door, insulated		ea					
	Blank-off Existing Linear Diffusers at Level 2 Southside		ls					
	Subtotal							

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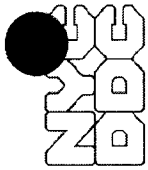
Bidder:

DDC ID: C0290BCHJ-2

Sponsor Agency: DGS

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 2123	Pumps							
	CWP-1&2		ea					
	CWP-3&4		ea					
	Subtotal							
23 2500	Pipe Cleaning and Chemical Water Treatment							
	Chemical Treatment System/Maintenance/Contract		ls					
	Subtotal							
23 2600	Water Specialties							
	Circuit setter balance valve, bronze body, threaded, 1" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 1-1/2" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 2" pipe size		ea					
	Circuit setter balance valve, bronze body, threaded, 2-1/2" pipe size		ea					
	Circuit setter balance valve, cast iron body, flanged, 4" pipe size		ea					
	Circuit setter balance valve, cast iron body, flanged, 5" pipe size		ea					
	ET-1		ea					
	ET-2		ea					
	Strainer, Y type, bronze body, screwed, 125 lb., 1" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb., 1-1/4" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb., 1-1/2" pipe size		ea					
	Strainer, Y type, bronze body, screwed, 125 lb., 2" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb., 2-1/2" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb., 4" pipe size		ea					
	Strainer, Y type, iron body, flanged, 125 lb., 5" pipe size		ea					
	Subtotal							
23 2710	Dry Coolers							
	DRC-R-1		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
	DRC-R-2		ea					
	DRC-R-3		ea					
	Subtotal							
23 3313	Dampers							
	Duct accessories, fire damper, curtain type, vertical, 10" x 8", U.L. label, 1-1/2 hour rated (Remove and Replace)		ea					
	Duct accessories, fire damper, curtain type, vertical, 12" x 10", U.L. label, 1-1/2 hour rated		ea					
	Duct accessories, fire damper, curtain type, vertical, 20" x 20", U.L. label, 1-1/2 hour rated		ea					
	Duct accessories, fire/smoke combination damper, louver type, 14" x 14", U.L. label		ea					
	Duct accessories, fire/smoke combination damper, louver type, 40" x 18", U.L. label		ea					
	Duct accessories, fire/smoke combination damper, louver type, 22" x 16", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 22" x 18", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 30" x 18", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 36" x 26", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 20" x 8", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 12" x 8", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 42" x 10", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 34" x 14", U.L. label (Remove & Replace)		ea					

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Sponsor Agency: DGS

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 accessories, fire/smoke combination damper, louver type, 28" x 9", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 32" x 16", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 32" x 32", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 40" x 17", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 24" x 10", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, louver type, 34" x 14", U.L. label (Remove & Replace)		ea					
	Duct accessories, fire/smoke combination damper, damper operator motor, 24 or 120 volt		ea					
	Duct accessories, volume damper, 6" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 8" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 10" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 12" diameter (cut into existing duct)		ea					
	Duct accessories, volume damper, 12"x 8"(cut into existing duct)		ea					
	SA-D		ea					
	SA-I		ea					
	Subtotal							
23 3610	Air Outlets and Inlets							
	CD-A		ea					
	CR-A		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
	RG-A		ea					
	RG-B		ea					
	Rotate Existing Diffuser		ea					
	Replace Existing 4 way diffuser w/2 way diffuser		ea					
	Subtotal							
23 5210	Piping and Accessories							
	Pipe/ftgs, copper, tubing, solder, 3/4" diameter, type L, includes coupling & clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 1" diameter, type L, includes coupling & clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 1-1/4" diameter, type L, includes coupling & clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 1-1/2" diameter, type L, includes coupling & clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, copper, tubing, solder, 2" diameter, type L, includes coupling & clevis hanger assembly 10' O.C.		If					
	Pipe/ftgs, steel, galvanized, threaded, 3/4", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' OC		If					
	Pipe/ftgs, steel, galvanized, threaded, 1", schedule 40, Spec. A-53, includes coupling and clevis hanger assembly sized for covering, 10' OC		If					
	Pipe/ftgs, steel, black, welded, 2-1/2" diameter, schedule 40, Spec. A-53, includes yoke & roll hanger assembly, sized for covering, 10' OC		If					
	Pipe/ftgs, steel, black, welded, 3" diameter, schedule 40, Spec. A-53, includes yoke & roll hanger assembly, sized for covering, 10' OC		If					

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CONTRACT 1 - GENERAL CONSTRUCTION WORK

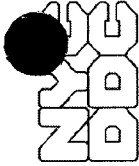
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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Pipe/ftrs, steel, black, welded, 4" diameter, schedule 40, Spec. A-53, includes yoke & roll hanger assembly, sized for covering, 10' OC		If					
	Pipe/ftrs, steel, black, welded, 5" diameter, schedule 40, Spec. A-53, includes yoke & roll hanger assembly, sized for covering, 10' OC		If					
	Cap/Plug existing piping - 1"		ea					
	Cap/Plug existing piping - 1-1/4"		ea					
	Cap/Plug existing piping - 1-1/2"		ea					
	Cap/Plug existing piping - 2"		ea					
	Cap/Plug existing piping - 2-1/2"		ea					
	Cap, existing piping 2-1/2"		ea					
	Subtotal							
23 6200	Water Cooled Self-Contained Air Conditioning Units							
	WC-22 thru 26		ea					
	WC-27		ea					
	WC-21 (not scheduled)		ea					
	Subtotal							
23 7305	Fans							
	MUAF-10-1		ea					
	EF-10-1		ea					
	TF-7-1 (incl VFD)		ea					
	TF-XX-20/30		ea					
	TF-XX-80/90		ea					
	TF-XX-00/10		ea					
	TF-XX-40/50		ea					
	TF-XX-60/70		ea					
	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 8500	Variable Frequency Controllers Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA 1		ea					
	Subtotal							
<u>26 0000</u>	ELECTRICAL							
26 0002	Electrical Special Conditions Safety switches, 250 or 600 V, 30 amp, electrical demolition, remove, including disconnection of wire & conduit terminations		ea					
	Wire, THW-THWN-THHN, #12, electrical demolition, removed from in place conduit, to 15' high		cif					
	Wire, THW-THWN-THHN, 1/0, electrical demolition, removed from in place conduit, to 15' high		cif					
	Wire, THW-THWN-THHN, 500 kcmil, electrical demolition, removed from in place conduit, to 15' high		cif					
	Existing conduit, 3 1/2", abandon in place and seal, allow		ls					
	Disconnect existing feeder serving panel EPP-10AC, allow		ls					
	Variable frequency drive, 460 V, for 10 HP motor size, electrical demolition, remove		ea					
	Misc. equipment/work		ls					
	Fire alarm system cable, #14/2C		cif					
	Detection system, control module		ea					
	Detection system, relay module		ea					
	Detection system, control module, disconnect/reconnect		ea					
	Start up/ Testing/ Commissioning Coordination		ls					
	Subtotal							
26 0005	Access Doors in General Construction Furnish access doors		ls					
	Subtotal							

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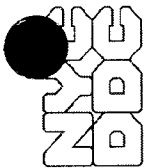
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DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 0250	Systems Identification							
	Systems identification, tagging		ls					
	Subtotal							
26 0265	Testing, Adjusting and Balancing							
	TAB		ls					
	Subtotal							
26 0280	Equipment Connections and Coordination							
	Motor connections, flexible conduit and fittings, up to 1 HP motor		ea					
	Motor connections, flexible conduit and fittings, 1.5 HP motor		ea					
	Motor connections, flexible conduit and fittings, 3 phase, sealite, 460 volt, up to 20 HP motor		ea					
	Motor connections, flexible conduit and fittings, 1 phase, 115 volt, up to 1 HP motor, disconnect/reconnect		ea					
	Subtotal							
26 0290	Ceiling, Floor and Wall Electrical Penetration Fire Seals							
	Drilling/cutting/patching/firestopping		ls					
	Subtotal							
26 0519	600 Volt Wire and Cable							
	Termination, cable, #1/0		ea					
	Termination, cable, #500 MCM		ea					
	Wire, copper, solid, 600 volt, #12, type THWN-THHN, in raceway		clf					
	Wire, copper, solid, 600 volt, #10, type THWN-THHN, in raceway		clf					
	Wire, copper, stranded, 600 volt, #8, type THWN-THHN, in raceway		clf					

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**Department of
Design and
Construction**

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Bronx Hall of Justice Remediation- Bid Package 2

Location: 265 East 161st Street, Bronx, NY 10456

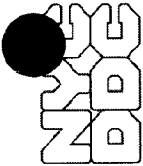
Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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
	Wire, copper, stranded, 600 volt, 1/0, type THWN-THHN, in raceway		clf					
	Wire, copper, stranded, 600 volt, 500 MCM, type THWN-THHN, in raceway		clf					
	Subtotal							
26 0526	Grounding System							
	Grounding systems		ls					
	Subtotal							
26 0533	Raceways and Boxes							
	Conduit, hangers and supports		ls					
	Rigid galvanized steel conduit, 3/4" diameter, to 15' H, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF		lf					
	Rigid galvanized steel conduit, 3-1/2" diameter, to 15' H, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF		lf					
	Electric metallic tubing (EMT), 3/4" diameter, to 15' H, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF		lf					
	Outlet boxes, pressed steel, 4-11/16" square, 2-1/8" deep, 3/4" to 1-1/4" KO		ea					
	Outlet boxes, pressed steel, covers, blank, 4-11/16" square		ea					
	Outlet boxes, cast, FDC, 1 gang, 3/4" hub, w/weatherproof cover		ea					
	Pull boxes, sheet metal, type SC, 24" W x 24" H x 8" D, NEMA 1		ea					
	Pull boxes, cast iron, water & dust tight, 24" L x 24" W x 10" D, NEMA 4, surface mounting		ea					
	Subtotal							
26 2726	Wiring Devices							
	Duplex receptacle, ground fault interrupting, 20 amp		ea					
	Subtotal							

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**Department of
Design and
Construction**

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Bronx Hall of Justice Remediation- Bid Package 2

Location: 265 East 161st Street, Bronx, NY 10456

Bidder:

DDC ID: CO290BCHJ-2

Sponsor Agency: DGS

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 2813	Fuses (600 V and Less) (included w/ other sections)							
26 2816	Disconnect Switches							
	Safety switches, heavy duty, 3 pole, nonfusable, 600 v., 30 amp, NEMA 1		ea					
	Safety switches, heavy duty, 3 pole, nonfusable, 600 v., 30 amp, NEMA 3R		ea					
	Safety switches, heavy duty, 3 pole, nonfusable, 600 v., 30 amp, NEMA 3R		ea					
	Safety switch w/thermal overload		ea					
	Subtotal							
26 2913	Installation of Individual Motor Controllers							
	Motor starter, 1.5 HP, NEMA 1, incl enclosure		ea					
	Variable frequency drives, enclosed, 460 volt, up to 3 HP motor size, NEMA 1, install only		ea					
	Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA 1, install only		ea					
	Variable frequency drives, enclosed, 460 volt, 15 HP motor size, NEMA 1, install only		ea					
	Subtotal							
26 4113	Lightning Protection							
	Air terminal and base, copper, 1/2" dia x 12", over 75' high		ea					
	Lightning protection cable, copper, 375 lb per thousand ft., over 75' high		lf					
	Splice new lightning protection copper conductor to existing system		ls					
	Subtotal							
	TOTAL CONTRACT 1 - GENERAL CONSTRUCTION WORK							

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**ATTACHMENT 1 - BID INFORMATION
PROJECT ID: CO290BCHJ-2**

DESCRIPTION AND LOCATION OF WORK:

**Bronx Hall of Justice Remediation – Bid Package 2
265 East 161st Street,
Bronx, NY 10456
E-PIN: 85016B0125 / DDC PIN: 8502016CT0006C**

DOCUMENTS AVAILABLE AT:

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

SUBMISSION OF BIDS BEFORE BID OPENING:

TIME TO SUBMIT:

On or Before: **TUESDAY, JUNE 21, 2016**
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

PRE BID QUESTIONS (PBQs):

Please be advised that PBQs must be submitted to the Agency Contact Person at least five (5) business days (by 5:00 P.M. EST) prior to the bid opening date.

BID OPENING:

PLACE OF BID OPENING:	Department of Design and Construction Contract Section 30-30 Thomson Avenue – First Floor Long Island City, NY 11101
DATE AND HOUR:	TUESDAY, JUNE 21, 2016 AT 2:00 PM
	LATE BIDS WILL NOT BE ACCEPTED

PRE-BID WALK-THRU AND CONFERENCE:

PLACE	Bronx Hall of Justice 265 East 161st Street Bronx, NY 10456
DATE AND HOUR	THURSDAY, JUNE 2, 2016 AT 10:00 AM
MANDATORY OR OPTIONAL	OPTIONAL

BID SECURITY:

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

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

PERFORMANCE AND PAYMENT SECURITY:

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

AGENCY CONTACT PERSON:

Lorraine Holley, 30-30 Thomson Avenue - First Floor, Long Island City, Queens, NY 11101
Telephone (718) 391-1016 or (718) 391-2601 Fax: (718) 391-2615

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**BID BOOKLET
PART B**

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SAFETY QUESTIONNAIRE

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

1. Bidder Information:

Company Name: _____

DDC Project Number: _____

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

Company has previously worked for DDC _____ YES _____ NO

2. Type(s) of Construction Work

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

3. Experience Modification Rate:

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

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

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

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

4. OSHA Information:

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

____ YES ____ NO Contractor has had an incident requiring OSHA notification within 8 hours (all work-related fatalities) or an incident requiring OSHA notification within 24 hours (all work-related impatient hospitalizations, all amputations and all losses of an eye).

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

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

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

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

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

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

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

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

5. Safety Performance on Previous DDC Project(s)

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

YES NO Accident on previous DDC Project(s).
 DDC Project Number(s): _____, _____, _____

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

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

Title: _____

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Pre-Award Process

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

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

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

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

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

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

- (2) **Schedule of Aged Accounts Receivable,** including portion due within ninety (90) days.
- (D) **Project Specific Information:** If required, the bidder must submit the project specific information described below:
- (1) Statement indicating the number of years of experience the bidder has had and in what type of construction.
- (2) Resumes of all key personnel to be involved in the project, including the proposed project superintendent.
- (3) List of significant pieces of equipment expected to be used for the contract, and whether such equipment is owned or leased.

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

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

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

A. PROJECT REFERENCES – SIMILAR CONTRACTS COMPLETED BY THE BIDDER

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

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

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

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

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

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

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

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

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

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

Contractor: _____

Address: _____

Telephone Number: _____

Name and Title of Signatory: _____

Contracting Agency or Owner: _____

Project Number: _____

Proposed Contract Amount: _____

Description and Address of Proposed Contract: _____

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

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

Date Signature

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

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VENDEX COMPLIANCE

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

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

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

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

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

(1) **Submission of Vendex Questionnaires to MOCS:** By signing in the space provided below, the Bidder certifies that as of the date specified below, the Bidder has submitted Vendex Questionnaires to the Mayor's Office of Contract Services, Attn: VENDEX, 253 Broadway, 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

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

I, _____, being duly sworn, state that I have read
Enter Your Name

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

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

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

Vendor Questionnaire *This section is required.*

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

Name of Submitting Entity: _____

Vendor's Address: _____

Vendor's EIN or TIN: _____ Requesting Agency: _____

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

Signature date on the last full vendor questionnaire signed for the submitting vendor: _____

Signature date on change submission for the submitting vendor: _____

Principal Questionnaire

This section refers to the most recent principal questionnaire submissions.



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

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

Certification *This section is required.*

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

Certified By:

Name (Print)

Title

Name of Submitting Entity

Signature

Date

Notarized By:

Notary Public

County License Issued

License Number

Sworn to before me on: _____
Date

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



Certificate of No Change Form

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

I, _____, being duly sworn, state that I have read
Enter Your Name

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

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

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

Vendor Questionnaire *This section is required.*

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

Name of Submitting Entity: _____

Vendor's Address: _____

Vendor's EIN or TIN: _____ Requesting Agency: _____

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

Signature date on the last full vendor questionnaire signed for the submitting vendor: _____

Signature date on change submission for the submitting vendor: _____

Principal Questionnaire

This section refers to the most recent principal questionnaire submissions.



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

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

Certification *This section is required.*

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

Certified By:

Name (Print)

Title

Name of Submitting Entity

Signature

Date

Notarized By:

Notary Public

County License Issued

License Number

Sworn to before me on: _____
Date

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

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

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

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

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

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

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

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

[Please Check One]

BIDDER'S CERTIFICATION

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

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

Dated: _____, New York
_____, 20__

SIGNATURE

PRINTED NAME

TITLE

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

Notary Public

Dated:

CITY OF NEW YORK

DIVISION OF LABOR SERVICES

CONSTRUCTION EMPLOYMENT REPORT

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

CONSTRUCTION EMPLOYMENT REPORT

GENERAL INFORMATION

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

PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION

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

13. Number of employees in your company: _____

14. Contract information:

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

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

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

(g) Description and location of proposed contract:

15. Has your firm been reviewed by the Division of Labor Services (DLS) within the past 36 months and issued a Certificate of Approval? Yes___ No___

If yes, attach a copy of certificate.

16. Has DLS within the past month reviewed an Employment Report submission for your company and issued a Conditional Certificate of Approval? Yes___ No___

If yes, attach a copy of certificate.

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

17. Has an Employment Report already been submitted for a different contract (not covered by this Employment Report) for which you have not yet received compliance certificate?
Yes___ No___ If yes,

Date submitted: _____

Agency to which submitted: _____

Name of Agency Person: _____

Contract No: _____

Telephone: _____

18. Has your company in the past 36 months been audited by the United States Department of Labor, Office of Federal Contract Compliance Programs (OFCCP)? Yes___ No___

If yes,

(a) Name and address of OFCCP office.

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

Yes___ No___

If yes, attach a copy of such certificate.

(c) Were any corrective actions required or agreed to? Yes___ No___

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

(d) Were any deficiencies found? Yes___ No___

If yes, attach a copy of such findings.

19. Is your company or its affiliates a member or members of an employers' trade association which is responsible for negotiating collective bargaining agreements (CBA) which affect construction site hiring? Yes___ No___

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

PART II: DOCUMENTS REQUIRED

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

- ___ (a) Health benefit coverage/description(s) for all management, nonunion and union employees (whether company or union administered)
- ___ (b) Disability, life, other insurance coverage/description
- ___ (c) Employee Policy/Handbook
- ___ (d) Personnel Policy/Manual
- ___ (e) Supervisor's Policy/Manual
- ___ (f) Pension plan or 401k coverage/description for all management, nonunion and union employees, whether company or union administered
- ___ (g) Collective bargaining agreement(s).
- ___ (h) Employment Application(s)
- ___ (i) Employee evaluation policy/form(s).
- ___ (j) Does your firm have medical and/or non-medical (i.e. education, military, personal, pregnancy, child care) leave policy?

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

- | | |
|--|--------------|
| (a) Prior to job offer | Yes___ No___ |
| (b) After a conditional job offer | Yes___ No___ |
| (c) After a job offer | Yes___ No___ |
| (d) Within the first three days on the job | Yes___ No___ |
| (e) To some applicants | Yes___ No___ |
| (f) To all applicants | Yes___ No___ |
| (g) To some employees | Yes___ No___ |
| (h) To all employees | Yes___ No___ |

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

23. Does your firm or any of its collective bargaining agreements require job applicants to take a medical examination? Yes___ No___

If yes, is the medical examination given:

- | | |
|-----------------------------------|--------------|
| (a) Prior to a job offer | Yes___ No___ |
| (b) After a conditional job offer | Yes___ No___ |
| (c) After a job offer | Yes___ No___ |
| (d) To all applicants | Yes___ No___ |
| (e) Only to some applicants | Yes___ No___ |

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

24. Do you have a written equal employment opportunity (EEO) policy? Yes___ No___

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

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

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

26. Does your firm or collective bargaining agreement(s) have an internal grievance procedure with respect to EEO complaints? Yes___ No___

If yes, please attach a copy of this policy.

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

27. Has any employee, within the past three years, filed a complaint pursuant to an internal grievance procedure or with any official of your firm with respect to equal employment opportunity? Yes___ No___

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

28. Has your firm, within the past three years, been named as a defendant (or respondent) in any administrative or judicial action where the complainant (plaintiff) alleged violation of any anti-discrimination or affirmative action laws? Yes___ No___

If yes, attach a log. See instructions.

29. Are there any jobs for which there are physical qualifications? Yes___ No___

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

30. Are there any jobs for which there are age, race, color, national origin, sex, creed, disability, marital status, sexual orientation, or citizenship qualifications? Yes___ No___

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

SIGNATURE PAGE

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

Contractor's Name

Name of person who prepared this Employment Report

Title

Name of official authorized to sign on behalf of the contractor

Title

Telephone Number

Signature of authorized official

Date

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

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

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

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

Only original signatures accepted.

Sworn to before me this _____ day of _____ 20 _____

Notary Public

Authorized Signature

Date

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

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

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

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

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

OWNERSHIP CODES

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

FORM B: PROJECTED WORKFORCE

TRADE CLASSIFICATION CODES

- (J) Journey/level Workers
- (H) Helper
- (TOT) Total by Column
- (A) Apprentice
- (TRN) Trainee

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

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

Total (Col. #1-10): _____

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

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

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

FORM B: PROJECTED WORKFORCE

Trade: _____

Union Affiliation, if applicable

Total (Col. #1-10): _____

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

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

MALES

(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.

J
H
A
TRN
TOT

FEMALES

(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.

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

FORM C: CURRENT WORKFORCE

TRADE CLASSIFICATION CODES

- (J) Journeylevel Workers
- (H) Helper
- (TOT) Total by Column
- (A) Apprentice (TRN) Trainee

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

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

Total (Col. #1-10):

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

Total Female
(Col. #6 - 10):

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

FORM C: CURRENT WORKFORCE

Trade: _____

Union Affiliation, if applicable

Total (Col. #1-10): _____

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

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

MALES

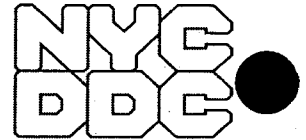
FEMALES

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

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



FMS ID: CO290BCHJ-2



Department of
Design and
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

Bronx Hall of Justice Remediation- Bid Package 2

LOCATION: 265 East 161st Street
BOROUGH: Bronx 10456
CITY OF NEW YORK

Contractor _____

Dated _____, 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper _____

Dated _____, 20____





Department of
Design and
Construction

PROJECT ID:

CO290BCHJ-2

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

**PROJECT LABOR AGREEMENT
INFORMATION FOR BIDDERS
CONTRACT
PERFORMANCE AND PAYMENT BONDS
SCHEDULE OF PREVAILING WAGES
GENERAL CONDITIONS**

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR THE PROJECT

**Bronx Hall of Justice Remediation- Bid
Package 2**

LOCATION:
BOROUGH:
CITY OF NEW YORK

265 East 161st Street
Bronx 10456

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

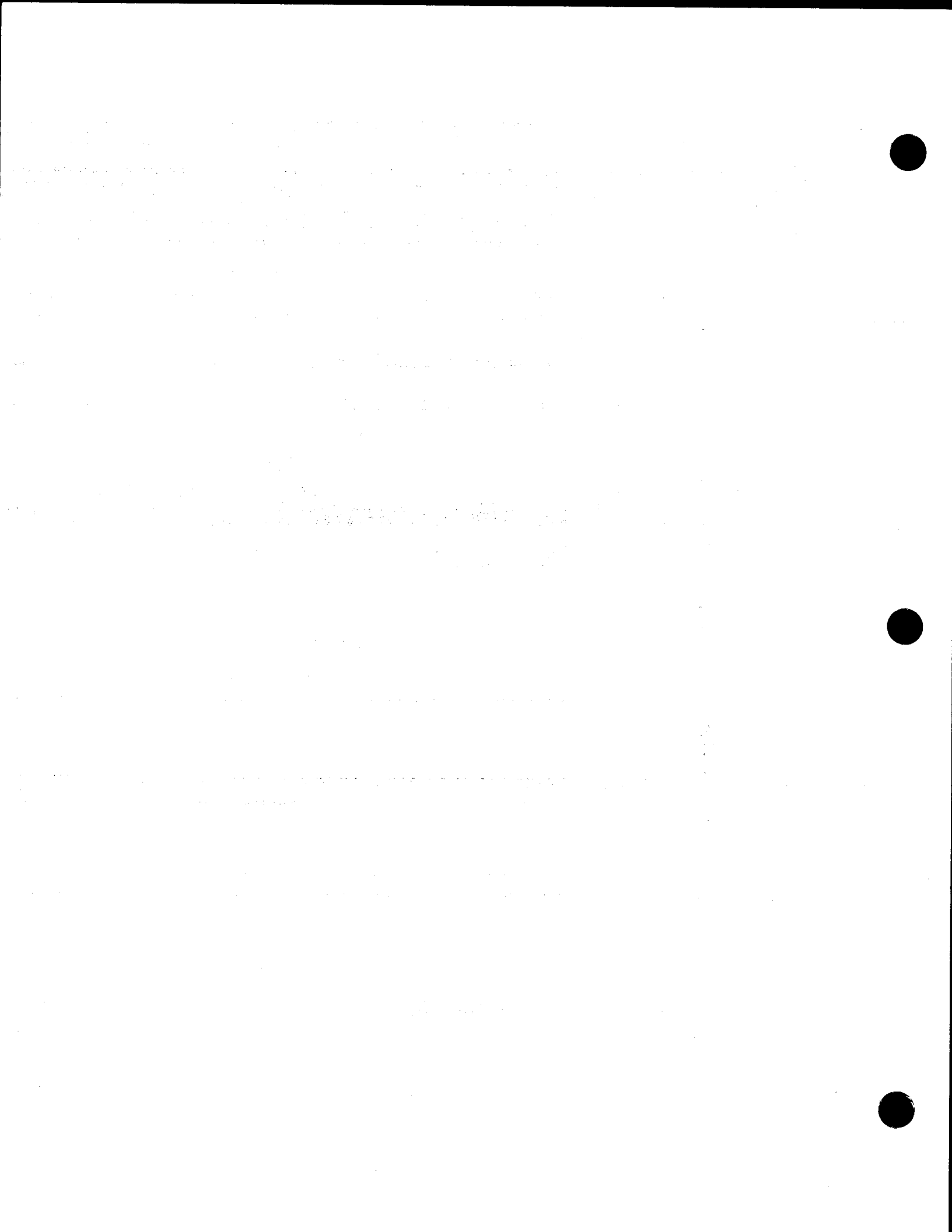
DGS

Rafael Vinoly Architects



Date: January 25, 2016

6-115





**Department of
Design and
Construction**

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

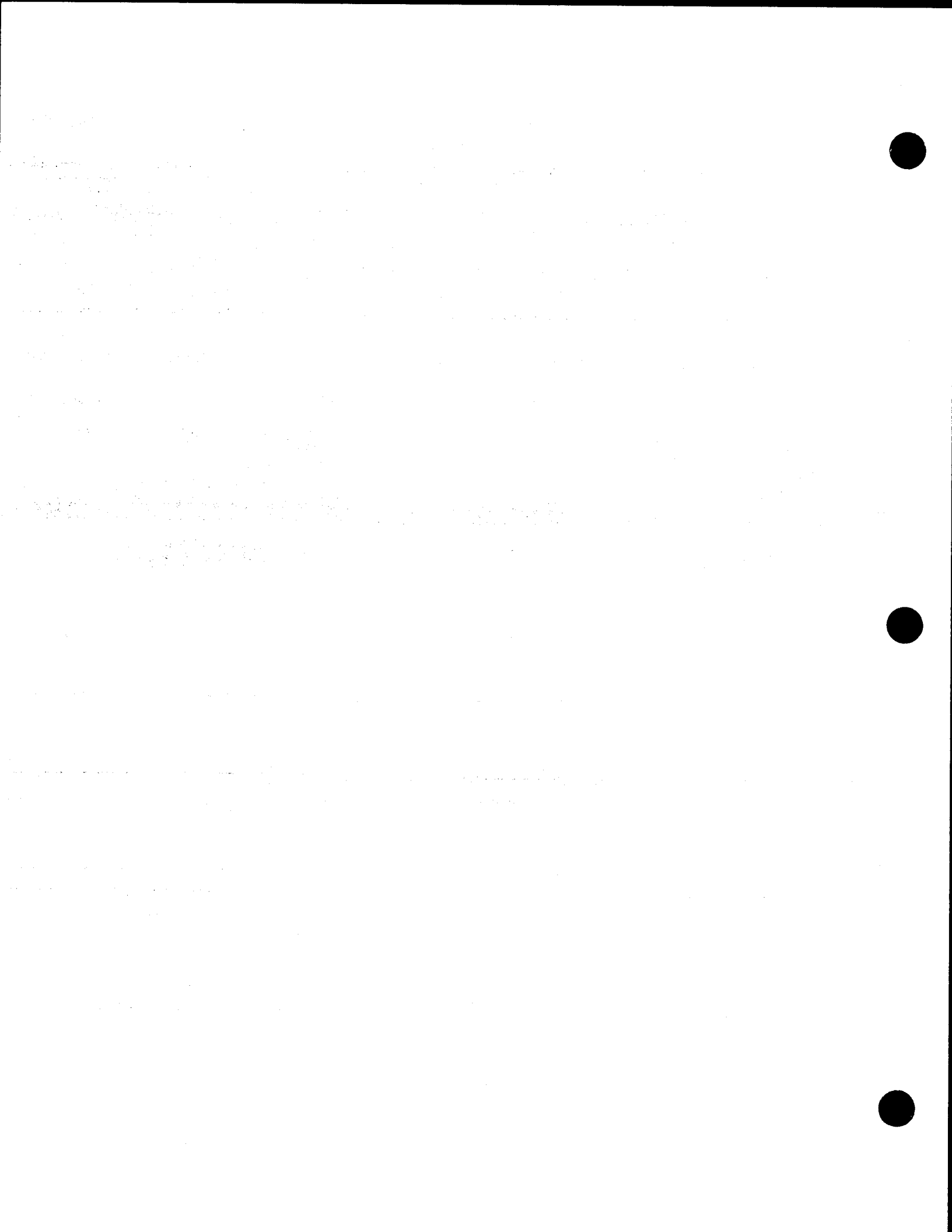
30-30 THOMSON AVENUE
LONG ISLAND CITY, NEW YORK 11101-3045
TELEPHONE (718) 391-1000
WEBSITE www.nyc.gov/buildnyc

VOLUME 2 OF 3

**PROJECT LABOR AGREEMENT
INFORMATION FOR BIDDERS
CONTRACT
PERFORMANCE AND PAYMENT BONDS
SCHEDULE OF PREVAILING WAGES
GENERAL CONDITIONS**

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR THE PROJECT





2015 Project Labor Agreement

NOTICE: THIS CONTRACT IS SUBJECT TO A NEW PROJECT LABOR AGREEMENT EXECUTED IN 2015

This contract is subject to the attached Project Labor Agreement ("PLA") entered into between the City and the Building and Construction Trades Council of Greater New York ("BCTC") affiliated Local Unions. By submitting a bid, the Contractor agrees that if awarded the Contract the PLA is binding on the Contractor and all subcontractors of all tiers. The bidder to be awarded the contract will be required to execute the attached Letter of Assent prior to award. Contractor shall include in any subcontract a requirement that the subcontractor, and sub-subcontractors of all tiers, become signatory to and bound to the PLA with respect to the subcontracted work. Contractor will also be required to have all subcontractors of all tiers execute the attached Letter of Assent prior to such subcontractors performing any work on the Project. Bidders are advised that the City of New York and City agencies have entered into multiple PLAs. The terms of each PLA, while similar, are not identical. All bidders should carefully read the entire PLA that governs this Contract.

In addition, please note that there are significant revisions between the 2015 PLA attached to this bid and the prior Citywide Renovation PLA. The Contractor is urged to review the entire PLA. Significant changes include:

- **Micro Work Orders:** For JOCS and Requirements contracts, Task Orders or Work Orders that do not exceed \$10,000 are not subject to the PLA. See PLA Article 3, Section 1.
- **On Call Contracts:** Provisions have been added regarding the referral of workers for on call contracts where Contractors are required to respond on an expedited basis. See PLA Article 4, Section 8.
- **Grievances:** The grievance procedure governing disputes under the PLA has been clarified. See PLA Article 9, Section 1.
- **Delinquent Contractors:** Contractors and Subcontractors who do not make required payments to union funds on a timely basis are subject to requirements to submit cancelled checks or another form of proof of payment in addition to certified payroll reports when requesting payment. See PLA Article 11, Section 2.
- **Payment to Union Funds for Non-Union Workers:** Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for "core" non-union employees (working pursuant to Article 4, Section 2 of the PLA) who are already covered under such bona fide private benefit plans. See PLA Article 11, Section 2.
- **Veterans Day:** Veterans Day has been added to the list of standard holidays. See Article 12, Section 4.
- **Reporting Pay for Weather Events:** The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See Article 12, Section 6.

To the extent that the terms of the PLA conflict with any other terms of the invitation for bids, including the Standard Construction Contract, the terms of the PLA shall govern. For example, the PLA section that authorizes the scheduling of a four-day week, ten hours per day on straight time at the commencement of the job, PLA Article 12, section 1, overrides the Standard Construction Contract's provision concerning a five-day work week with a maximum of eight hours in a day, Standard Construction Contract Article 37.2.1. Where, however, the invitation for bids, including the Standard Construction Contract, requires the approval of the City/Department, the PLA does not supersede or eliminate that requirement.

In addition to the various provisions regarding work rules, Contractors should take special note of the requirement that Contractors and Subcontractors make payments to designated employee benefit funds. See PLA Article 11, Section 2. The PLA also contains provisions for what occurs when a Contractor or a subcontractor fails to make required payments into the benefit funds, including potentially the direct payment by the City to the benefit fund of monies owed and corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2. The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

This Contract is subject to the apprenticeship requirements of Labor Law §222 and to apprenticeship requirements established by the Department pursuant to Labor Law §816-b. Please be advised that the involved trades have apprenticeship programs that meet the statutory requirements of Labor Law 222(e) and the requirements set by the Department pursuant to Labor Law §816-b, Contractors and subcontractors who agree to perform the Work pursuant to the PLA are participating in such apprenticeship programs within the meaning of Labor Law §222(e) and the Department's directive.

If this Contract is subject to the Minority-Owned and Women-Owned Business Enterprise ("M/WBE") program implemented pursuant to New York City Administrative Code §6-129, the specific requirements of M/WBE participation for this Contract are set forth in Schedule B entitled the "Subcontractor Utilization Plan," and are detailed in a separate Notice to Prospective Contractors included with this bid package. If such requirements are included with this Contract, the City strongly advises Contractors to read those provisions, as well as PLA Article 4, Section 2(C), carefully. A list of certified M/WBE firms may be obtained from the Department of Small Business Services (DSBS) website at www.nyc.gov/getcertified, by emailing DSBS at MWBE@sbs.nyc.gov, by calling the DSBS certification hotline at (212) 513-6311, or by visiting or writing DSBS at 110 William St., 7th floor, New York, New York, 10038.

The local collective bargaining agreements (CBAs) that are incorporated into the PLA as PLA Schedule A Agreements are available on computer disk from the Department's Contract Officer upon the request of any prospective bidder. Please note that the "PLA Schedule A" is distinct from the Department's Schedule A that is a part of this invitation for bids.

A contact list for the participating unions is set forth after the FAQs.

Below are answers to frequently asked questions (FAQs) about this PLA:

1. Q. Does a Contractor need to be signatory with the unions in the NYC Building and Construction Trades Council in order to bid on projects under the PLA?
A. No, any contractor may bid by signing and agreeing to the terms of the PLA. The contractor need not be signatory with these unions by any other labor agreement or for any other project.

2. Q. Does a Contractor agreeing to the PLA and signing the Letter of Assent create a labor agreement with these unions outside of the project covered by the PLA?
A. No, the PLA applies only to those projects that the Contractor agrees to perform under the PLA and makes no labor agreement beyond those projects.

3. Q. Do the provisions of the PLA apply equally to subcontractors as well as contractors and how does the PLA affect the subcontractors that a bidder may utilize on the project?
A. Yes, the PLA applies to subcontractors and all subcontractors must agree to become party to the PLA. See PLA Art. 2, Sec. 8. Subject to the Department's approval of subcontractors pursuant to Article 17 of the Standard Construction Contract, a Contractor may use any subcontractor, union or non-union, as long as the subcontractor signs and agrees to the terms of the PLA.

4. Q. Are bidders required to submit Letters of Assent signed by proposed subcontractors with their bid in order to be found responsive?
A. No, bidders do not have to submit signed Letters of Assent from their subcontractors with their bid. Subcontractors, however, will be required to sign the Letter of Assent prior to being approved by the Department.

5. Q. May a Contractor or subcontractor use any of its existing employees to perform this work?
A. Generally labor will be referred to the Contractor from the respective signatory local unions. See PLA Article 4. However, Contractors and subcontractors may continue to use up to 12% of their existing, qualifying labor force for this work, in accordance with the terms of PLA Article 4, Section 2B. Certified M/WBEs for which participation goals are set pursuant to NYC Administrative Code §6-129 that are not signatory to any Schedule A CBAs may use their existing employees for the 2nd, 4th, 6th and 8th employee needed on the job if their contracts are valued at or under \$500,000. For contracts valued at above \$500,000 but under \$1,000,000, such certified M/WBEs may use their own employees for the 2nd, 5th and 8th employees needed on the job in accordance with the provisions of PLA Article 4, Section 2C. If additional workers are needed by these M/WBEs, the additional workers will be referred to the Contractor from the signatory local unions subject to the Contractor's right to meet 12% of the additional needs with its existing, qualifying employees.

6. Q. Must the City set M/WBE participation goals for the particular project or contract in order for a certified M/WBE to utilize the provisions of PLA Article 4, Section 2C?
A. No. PLA Article 4, Section 2(C) specifies what categories of M/WBEs are eligible to take advantage of this provision (i.e., those M/WBEs for which the City is

authorized to set participation goals under §6-129). For purposes of section 2(C), it is not necessary for the project to be subject to §6-129 or for the City to have actually set participation goals for the particular contract or project. The result is the same where a projects receives State funding and therefore is subject to the requirements of Article 15-A of the Executive Law.

7. Q. May a Contractor bring in union members from locals that are not signatory unions?
- A. Referrals will be from the respective signatory locals and/or locals listed in Schedule A of the PLA. Contractors may utilize 'traveler provisions' contained in the local collective bargaining agreements (local CBAs) where such provisions exist and/or in accordance with the provisions of PLA Article 4, Section 2.
8. Q. Does a non-union employee working under the PLA automatically become a union member?
- A. No, the non-union employee does not automatically become a union member by working on a project covered by the PLA. Non-union employees working under the PLA are subject to the union security provisions (i.e., union dues/agency shop fees) of the local CBAs while on the project. These employees will be enrolled in the appropriate benefit plans and earn credit toward various union benefit programs except in certain circumstances as set forth in the PLA. See PLA Article 4, Section 6 and Article 11.
9. Q. When will the agency shop dues payer affiliate workers become eligible for union benefits?
- A. Union benefit plans have their own plan documents that determine eligibility and workers will become eligible for certain benefits at different points in time. Contractors who will have agency shop dues payer affiliate workers should speak with the respective union(s) as to benefit eligibility thresholds.
10. Q. Are all Contractors and subcontractors working under the PLA, including non-union Contractors and Contractors signatory to collective bargaining agreements with locals other than those that are signatories to the PLA, required to make contributions to designated employee benefit funds?
- A. Except in certain circumstances, as described in the following paragraph, Contractors and subcontractors working under the PLA will be required to contribute on behalf of all employees covered by the PLA to established jointly trustee employee benefit funds designated in the Schedule A CBAs and required to be paid on public works under any applicable prevailing wage law. See PLA Article 11, Section 2. The Agency may withhold from amounts due the Contractor any amounts required to be paid, but not actually paid into any such fund by the Contractor or a subcontractor. See PLA Article 11, Section 2 D.

Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for their employees working pursuant to Article 4, Section 2 (B) and (C) ("core" employees) who are already covered under their bona fide private benefit plans. Supplemental benefit funds in excess

of the annualized value of the private benefit plans will be paid to workers as additional wages in compliance with Labor Law 220. At the time of contract award, the Contractor shall make available to the contracting Agency a complete set of plan documents for each private benefit plan into which contributions will be made and/or coverage provided. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220. See PLA Article 11, Section 2.

11. Q. What happens if a Contractor or subcontractor fails to make a required payment to a designated employee benefit fund?

A. The PLA sets forth a process for unions to address a contractor or a subcontractor's failure to make required payments. The process includes potentially the direct payment by the City to the benefit fund of monies owed and the corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2.

Upon notification by a union or fringe benefit fund that a Contractor is delinquent in its payment of benefits and a determination by the Agency that the union or fund has submitted appropriate documentation of such delinquency, the Agency will thereafter require the Contractor to submit cancelled checks or other equivalent proof of payment of benefit contributions with certified payroll reports for work covered by this PLA on which the Contractor is engaged.

The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

12. Q. Does signing on to the PLA satisfy the Apprenticeship Requirements established for this bid?

A. Yes. By agreeing to perform the Work subject to the PLA, the bidder demonstrates compliance with the apprenticeship requirements imposed by this Invitation for Bids.

13. Q. Who decides on the number of workers needed?

A. Except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the determination as to the number of employees to be hired and the qualifications therefore and the promotion, transfer, and layoff of its employees. See PLA Article 6, Section 1.

14. Q. May a contractor discharge a union referral for lack of productivity?

A. Again, except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the right to discipline or discharge for just cause its employees. See PLA Article 6, Section 1.

15. Q. May a contractor assign a management person to site?

A. Yes. Managers are not subject to the provisions of the PLA, so there is no restriction on management and/or other non-trade personnel, as long as such personnel do not perform trade functions. See Article 3, Section 1.

16. Q. Does the PLA provide a standard work day across all the signatory trades?

A. Yes, all signatory trades will work an eight (8) hour day, Monday through Friday with a day shift at straight time as the standard work week. The PLA also permits a Contractor to schedule a four day (within Monday through Friday) work week, ten (10) hours per day at straight time if announced at the commencement of the project. See PLA Article 12, Section 1. This is an example where the terms of the PLA override provisions of the Standard Construction Contract (compare with section 37.2 of the Standard Construction Contract). The standard work week may be reduced to 35 or 37 ½ hours of work in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.

17. Q. Does the PLA create a common holiday schedule for all the signatory trades?

A. Yes, the PLA recognizes nine (9) common holidays, including Veterans Day. See PLA Article 12, Section 4.

18. Q. Does the PLA provide for a standard policy for 'shift work' across all signatory trades?

A. Yes, second and third shifts may be worked with a standard 5% premium pay. In addition, a day shift does not have to be scheduled in order to work the second and third shifts at the 1.05 hourly pay rate. See PLA Article 12, Section 3.

19. Q. May the Contractor schedule overtime work, including work on a weekend?

A. Yes, the PLA permits the Contractor to schedule overtime work, including work on weekends. See PLA Article 12, Sections 2, 3, and 5. To the extent that the Agency's approval is required before a Contractor may schedule or be paid for overtime, that approval is still required notwithstanding the PLA language.

20. Q. Are overtime payments affected by the PLA?

A. Yes, all overtime pay incurred Monday through Saturday will be at time and one half (1 ½). There will be no stacking or pyramiding of overtime pay under any circumstances. See PLA Article 12, Section 2. Sunday and holiday overtime will be paid according to each trade's CBA.

21. Q. Are there special provisions for Saturday work when a day is 'lost' during the week due to weather, power failure or other emergency?

A. Yes, when this occurs the Contractor may schedule Saturday work at weekday rates. See PLA Article 12, Section 5.

22. Q. Does the PLA contain special provisions for the manning of Temporary Services?

- A. Yes. Where temporary services are required by specific request of the Agency or construction manager, they shall be provided by the Contractor's existing employees during working hours in which a shift is scheduled for employees of the Contractor. The need for temporary services during non-working hours will be determined by the Agency or construction manager. There will be no stacking of trades on temporary services. See PLA Article 15.
23. Q. What do the workers get paid when work is terminated early in a day due to inclement weather or otherwise cut short of 8 hours?
- A. The PLA provides that employees who report to work pursuant to regular schedule and not given work will be paid two hours of straight time. Work terminated early for severe weather or emergency conditions will be paid only for time actually worked. In other instances where work is terminated early, the worker will be paid for a full day. See PLA Article 12, Sections 6 and 8. The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See PLA Article 12, Section 6.
24. Q. Should a local collective bargaining agreement of a signatory union expire during the project will a work stoppage occur on a project subject to the PLA?
- A. No. All the signatory unions are bound by the 'no strike' agreement as to the PLA work. Work will continue under the PLA and the otherwise expired local CBA(s) until the new local CBA(s) are negotiated and in effect. See PLA Articles 7 and 19.
25. Q. May a Contractor working under the PLA be subject to a strike or other boycott activity by a signatory union at another site while the Contractor is a signatory to the PLA?
- A. Yes. The PLA applies ONLY to work under the PLA and does not regulate labor relations at other sites even if those sites are in close proximity to PLA work.
26. Q. If a Contractor has worked under other PLAs in the New York City area, are the provisions in this PLA generally the same as the others?
- A. While Project Labor Agreements often look similar to each other, and particular clauses are often used in multiple agreements, each PLA is a unique document and should be examined accordingly.
27. Q. What happens if a dispute occurs between the Contractor and an employee during the project?
- A. The PLA contains a grievance and arbitration process to resolve disputes between the Contractor and the employees. See PLA Article 9.
28. Q. What happens if there is a dispute between locals as to which local gets to provide employees for a particular project or a particular aspect of a project?
- A. The PLA provides for jurisdictional disputes to be resolved in accordance with the NY Plan. See PLA Article 10. A copy of the NY Plan is available upon request from the

Department. The PLA provides that work is not to be disrupted or interrupted pending the resolution of any jurisdictional dispute. The work proceeds as assigned by the Contractor until the dispute is resolved. See PLA Article 10, Section 3.

29. Q. Does the 2015 Renovation PLA contain special provisions for JOCS or task order based Contracts?

A. The PLA does not apply to Task Orders or Work Orders that do not exceed \$10,000 issued under JOCS or Requirements Contracts otherwise subject to the PLA. See PLA Article 3, Section 1.

NYC Project Labor Agreements

CONTACT INFORMATION FOR LOCAL UNIONS

BOILER MAKERS LOCAL NO. 5

24 Van Siclen Avenue
Floral Park, NY 11001
Phone: (516) 326-2500
Fax: (516) 326-3435
Business Manager: Steve Ludwigson

BLASTERS & DRILLERS LOCAL NO. 29

43-12 Ditmars Blvd.
Astoria, NY, 11105
Phone: (718) 278-5800
Business Manager: Thomas Russo

BRICKLAYERS LOCAL NO. 1

4 Court Square #1
Long Island City, NY 11101
Phone: (718) 392-0525
Business Manager: Jeramiah Sullivan

CARPENTERS DISTRICT COUNCIL

395 Hudson Street, 9th Fl
New York, New York 10014
Phone: (212) 366-7500
Fax: (212) 675-3140
Business Manager: Joe Geiger
John Sheehy, D.C. Rep.

CEMENT MASONS NO. 780

150-50 14th Rd Suite 4
Whitestone, NY 11357
Phone: (718) 357-3750
Fax: (718) 357-2057
Business Manager: Gino Castingnoli

CONCRETE WORKERS DISTRICT COUNCIL NO. 16

29-18 35th Avenue
Long Island City, NY 11106
Phone: (718) 392-5077
Fax: (718) 392-5087
Business Manager: Alex Castaldi

DERRICKMEN AND RIGGERS LOCAL 197

35-53 24th Street
Long Island City, NY 11101
Phone: (718) 361-6534
Fax: (718) 361-6584
William Hayes Bus. Manager
Billhayes197@yahoo.com

DRYWALL TAPERS 1974

265 West 14th Street
New York, NY 10011
Phone: (212) 242-8500
Fax: (212) 242-2356
Business Manager: Sal Marsala

ELECTRICAL LOCAL NO. 3

158-11 Harry Van Arsdale, Jr. Avenue
Flushing, NY 11365
Phone: (718) 591-4000
Fax: (718) 380-8998
Business Manager: Chris Erickson
Raymond Melville, Asst. Bus. Mgr.
Construction

ELEVATOR CONSTRUCTORS NO. 1

47-24 27th Avenue
Long Island City, NY 11101
Phone: (718) 767-7004
Fax: (718) 767-6730
Business Manager: Lenny Legotte
llegotte@localoneiuec.com

ENGINEERS LOCAL UNION NO. 14

141-57 Northern Boulevard
Flushing, NY 11354
Phone: (718) 939-0600
Fax: (718) 939-3131
Business Manager: Edwin Christian

ENGINEERS NO. 15, 15A, 15B, 15C, 15D

265 West 14th Street
New York, NY 10011
Phone: (212) 929-5327-8-9
Fax: (718) 729-3070
Business Manager: Tom Callahan

ENGINEERS NO. 30

115-06 Myrtle Avenue
Richmond Hill, NY 11418
Phone: (718) 847-8484
Fax: (718) 850-0524
Business Manager: William Lynn

ENGINEERS No. 94

331-337 West 44th Street
New York, NY 10036
Phone: (212) 245-7040
Fax: (212) 245-7886
Business Manager: Kuba Brown
kubabrown@local94.com

GLAZIERS NO. 1087

45 West 14th Street
New York, NY 10011
Phone: (212) 924-5200
Fax: (212) 255-1151
Business Manager: Joseph Azzopardi

**HEAT & FROST INSULATORS
AND ALLIED WORKERS**

LOCAL UNION NO. 12

35-53 24th Street
Long Island City, NY 11101
Phone: (718) 784-3456
Fax: (718) 784-8357
Business Manager: Matty Aracich
matty@insulatorslocal12.com

**HEAT & FROST INSULATORS
LOCAL UNION NO. 12A**

1536 127th Street
College Point, NY 11356
Phone: (718) 886-7226
Business Manager: Jaime Soto

IRON WORKERS DISTRICT

505 White Plains Road, Suite 200
Tarrytown, NY 10591
Phone: (914) 332-4430
Fax: (914) 332-4431
Business Manager: Edward Walsh
iwnys@verizon.net

IRON WORKERS NO. 40 (Manhattan, The Bronx & Staten Island)

451 Park Avenue South

New York, NY 10016

Phone: (212) 889-1320

Fax: (212) 779-3267

Business Manager: Bob Walsh

IRON WORKERS NO. 361 (Brooklyn & Queens)

89-19 97TH Avenue

Ozone Park, NY 11416

Phone: (718) 322-1016-17

Fax: (718) 322-1053

Business Manager: Matthew Chartrand

LABORERS LOCAL NO. 78

ASBESTOS & LEAD ABATEMENT

30 Cliff Street

New York, New York 10038-2825

Phone: (212) 227-4803

Fax: (212) 406-1800

Business Manager: Edison Severino

**LABORERS, CONSTRUCTION AND
GENERAL BUILDING NO. 79**

520 8th Avenue

New York, NY 10018

Phone: (212) 465-7900

Fax: (212) 465-7903

Business Manager: Michael Prohaska

LABORERS NO. 731

34-11 35th Avenue

Astoria, NY 11106

(718) 706-0720

Business Manager: Joseph D'Amato

LATHERS METAL

LOCAL NO. 46

1322 Third Avenue

New York, NY 10021

Phone: (212) 737-0500

Fax: (212) 249-1226

Business Manager: Terrance Moore

MASON TENDERS DIST. COUNCIL

520 8th Avenue

New York, NY 10018

Phone: (212) 452-9400

Fax: (212) 452-9499

Business Manager: Robert Bonanza

METAL POLISHERS

LOCAL UNION NO. 8A

36-18 33rd Street 2nd Fl.

Long Island City, 11106

Phone: (718) 361-1770

Fax: (718) 361-1934

Business Manager: Hector Lopez

MILLWRIGHT AND MACHINERY

ERECTORS LOCAL NO. 740

89-07 Atlantic Avenue

Woodhaven, NY 11412

Phone: (718) 849-3636

Fax: (718) 849-0070

Business Manager: Joseph Geiger

ORNAMENTAL IRON WORKERS

NO. 580

501 West 42nd Street

New York, NY 10036

Phone: (212) 594-1662

Fax: (212) 564-2748

Business Manager: Pete Myers

PAINTERS DISTRICT

COUNCIL NO. 9

45 West 14th Street

New York, NY 10011

Phone: (212) 255-2950

Fax: (212) 255-1151

Business Manager: Joseph Ramaglia

PAINTERS STRUCTURAL STEEL

NO. 806

40 West 27th Street

New York, New York 10001

Phone: (212) 447-1838/0149

Fax: (212) 545-8386

Business Manager: Angelo Serse

**PAVERS & ROAD BUILDERS
DISTRICT COUNCIL NO. 1**

136-25 37TH Avenue, Suite 502
Flushing, NY 11354
Phone: (718) 779-8850
Fax: (718) 779-8857
Business Manager: Keith Lozcalzo

PLASTERS LOCAL UNION NO. 262

2241 Conner Street
Bronx, NY 10466
Phone: (718) 547-5440
Fax: (718) 547-5435
Business Manager: Michael Hubler

PLUMBERS NO. 1

158-29 Cross Bay Boulevard
Howard Beach, NY 11414
Phone: (718) 738-7500
Fax: (718) 835-0896
Business Manager: John Murphy

**PRIVATE SANITATION
LOCAL NO. 813**

45-18 Court Sq., Suite 600
Long Island City, NY 11101
Phone: (718) 937-7010
Fax: (718) 937-7003
Business Manager: Sean Campbell

ROOFERS & WATERPROOFERS NO. 8

12-11 43rd Avenue
Long Island City, NY 11101
Phone: (718) 361-1169
Fax (718) 361-8330
Business Manager: Nick Siciliano

**SHEET METAL WORKERS
LOCAL NO. 28**

MANHATTAN OFFICE
500 Greenwich Street
New York, NY 10013
Phone: (212) 941-7700
Fax: (212) 226-0304
Business Manager: Robert D'Orio

**SHEET METAL WORKERS
LOCAL 137**

21-42 44th Drive
Long Island City, NY 11101
Phone: (718) 937-4514
Fax: (718) 937-4113
Business Manager: Dante Dano

**STEAMFITTERS LOCAL UNION
NO. 638**

32-32 48th Avenue
Long Island City, NY 11101
Phone: (718) 392-3420
Fax: (718) 784-7285
Business Manager: Richard Roberts

TEAMSTERS LOCAL UNION 282

2500 Marcus Avenue
Lake Success, NY 11042
Phone: (516) 488-2822
Fax: (516) 488-4895
Business Manager: Tom Gesauldi

TEAMSTERS LOCAL UNION 814

21-42 44th Drive
Long Island City, NY 11101
Phone: (718) 609-6407
Fax: (718) 361-9610
Business Manager: Jason Ide

**TILE, MARBLE & TERRAZO B.A.C.
LOCAL UNION 7**

45-34 Court Square
Long Island City, NY 11101
Phone: (718) 786-7648
Fax: (718) 472-2370
Business Manager: Tom Lane

TIMBERMEN LOCAL 1556

395 Hudson Street
New York, NY 10014
Phone: (212) 242-1320
Business Manager: Joseph Geiger

NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES
PLA

PROJECT LABOR AGREEMENT

COVERING SPECIFIED

**RENOVATION & REHABILITATION
OF CITY OWNED BUILDINGS AND STRUCTURES**

2015 - 2018

NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES
PLA

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PROJECT LABOR AGREEMENT COVERING SPECIFIED
RENOVATION & REHABILITATION OF NEW YORK CITY OWNED
FACILITIES & STRUCTURES

ARTICLE 1 - PREAMBLE

WHEREAS, the City of New York desires to provide for the cost efficient, safe, quality, and timely completion of certain rehabilitation and renovation work ("Program Work," as defined in Article 3) in a manner designed to afford the lowest costs to the Agencies covered by this Agreement, and the Public it represents, and the advancement of permissible statutory objectives;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) providing a mechanism for responding to the unique construction needs associated with this Program Work and achieving the most cost effective means of construction, including direct labor cost savings, by the Building and Construction Trades Council of Greater New York and Vicinity and the signatory Local Unions and their members waiving various shift and other hourly premiums and other work and pay practices which would otherwise apply to Program Work;

(2) expediting the construction process and otherwise minimizing the disruption to the covered Agencies' ongoing operations at the facilities that are the subject of the Agreement;

(3) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes, reducing jobsite friction on common situs worksites, and promoting labor harmony and peace for the duration of the Program Work;

(4) standardizing the terms and conditions governing the employment of labor on Program Work;

(5) permitting wide flexibility in work scheduling and shift hours and times to allow maximum work to be done during off hours yet at affordable pay rates;

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- (6) permitting adjustments to work rules and staffing requirements from those which otherwise might obtain;
- (7) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
- (8) ensuring a reliable source of skilled and experienced labor; and
- (9) securing applicable New York State Labor Law exemptions.

WHEREAS, the Building and Construction Trades Council of Greater New York and Vicinity, its participating affiliated Local Unions and their members, desire to assist the City in meeting these operational needs and objectives as well as to provide for stability, security and work opportunities which are afforded by this Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Program Work safety conditions for both workers and the community in the project area.

NOW, THEREFORE, the Parties enter into this Agreement:

SECTION 1. PARTIES TO THE AGREEMENT

This is a Project Labor Agreement ("Agreement") entered into by the City of New York, on behalf of itself and the Agencies covered herein, including in their capacity as construction manager of covered projects and/or on behalf of any third party construction manager which may be utilized, and the Building and Construction Trades Council of Greater New York and Vicinity ("Council") (on behalf of itself) and the signatory affiliated Local Union's ("Unions" or "Local Unions"). The Council and each signatory Local Union hereby warrants and represents that it has been duly authorized to enter into this Agreement.

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ARTICLE 2 - GENERAL CONDITIONS

SECTION 1. DEFINITIONS

Throughout this Agreement, the various Union parties including the Building and Construction Trades Council of Greater New York and Vicinity and its participating affiliated Local Unions, are referred to singularly and collectively as "Union(s)" or "Local Unions"; the term "Contractor(s)" shall include any Construction Manager, General Contractor and all other contractors, and subcontractors of all tiers engaged in Program Work within the scope of this Agreement as defined in Article 3; "Agency" means the following New York City agencies: the Department for the Aging (DFTA), Administration for Children's Services (ACS), Department of Citywide Administrative Services (DCAS), Department of Correction (DOC), Department of Design and Construction (DDC); Fire Department:(FDNY), Department of Homeless Services (DHS), Human Resources Administration (HRA), Department of Health and Mental Hygiene (DOHMH), Department of Parks and Recreation (DPR), Police Department (NYPD); Department of Sanitation (DSNY); the New York City Agency that awards a particular contract subject to this Agreement may be referred to hereafter as the "Agency"; when an Agency acts as Construction Manager, unless otherwise provided, it has the rights and obligations of a "Construction Manager" in addition to the rights and obligations of an Agency; the Building and Construction Trades Council of Greater New York and Vicinity is referred to as the ["BCTC" or "Council"]; and the work covered by this Agreement (as defined in Article 3) is referred to as "Program Work."

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SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless each of the following conditions are met: the Agreement is executed by (1) the Council, on behalf of itself, (2) the participating affiliated Local Unions; and (3) the mayor of the City of New York or his designee.

SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

This Agreement shall be binding on all participating Unions and their affiliates, the Construction Manager (in its capacity as such) and all Contractors of all tiers performing Program Work, as defined in Article 3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their subcontractors, of all tiers, become signatory and bound by this Agreement with respect to that subcontracted work falling within the scope of Article 3 and all Contractors (including subcontractors) performing Program Work shall be required to sign a "Letter of Assent" in the form annexed hereto as Exhibit "A". This Agreement shall be administered by the applicable Agency or a Construction Manager or such other designee as may be named by the Agency or Construction Manager, on behalf of all Contractors.

SECTION 4. SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A, represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to this Program Work, in whole or in part, except that Program Work which falls within the jurisdiction of the Operating

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Engineers Locals 14 and 15 will be performed under the terms and conditions set out in the Schedule A agreements of Operating Engineers Locals 14 and 15. The Collective Bargaining Agreements of the affiliated local unions that cover the particular type of construction work to be performed by the contractor, and as set forth in the Schedule A list of Agreements, shall be deemed the Schedule A Collective Bargaining Agreements ("Schedule A CBA") under this Agreement. Where association and independent Collective Bargaining Agreements for a particular type of construction work are both set forth in Schedule A, association members shall treat the applicable association agreement as the Schedule A CBA and independent contractors shall treat the applicable independent agreement as the Schedule A CBA. Subject to the foregoing, where a subject covered by the provisions of this Agreement is also covered by a Schedule A Collective Bargaining Agreement, the provisions of this Agreement shall prevail. It is further understood that no Contractor shall be required to sign any other agreement as a condition of performing Program Work. No practice, understanding or agreement between a Contractor and a Local Union which is not set forth in this Agreement shall be binding on this Program Work unless endorsed in writing by the Construction Manager or such other designee as may be designated by the Agency.

SECTION 5. LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Construction Manager and any Contractor shall not be liable for any violations of this Agreement by any other Contractor; and the

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Council and Local Unions shall not be liable for any violations of this Agreement by any other Union.

SECTION 6. THE AGENCY

The Agency (or Construction Manager where applicable) shall require in its bid specifications for all Program Work within the scope of Article 3 that all successful bidders, and their subcontractors of all tiers, become bound by, and signatory to, this Agreement. The Agency (or Construction Manager) shall not be liable for any violation of this Agreement by any Contractor. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the Agency or Construction Manager in determining which Contractors shall be awarded contracts for Program Work. It is further understood that the Agency or Construction Manager has sole discretion at any time to terminate, delay or suspend the Program Work, in whole or part, on any Program.

**SECTION 7. AVAILABILITY AND APPLICABILITY
TO ALL SUCCESSFUL BIDDERS**

The Unions agree that this Agreement will be made available to, and will fully apply to, any successful bidder for (or subcontractor of) Program Work who becomes signatory thereto, without regard to whether that successful bidder (or subcontractor) performs work at other sites on either a union or non-union basis and without regard to whether employees of such successful bidder (or subcontractor) are, or are not, members of any unions. This Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Program Work.

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SECTION 8. SUBCONTRACTING

Contractors will subcontract Program Work only to a person, firm or corporation who is or agrees to become party to this Agreement.

ARTICLE 3-SCOPE OF THE AGREEMENT

SECTION 1. WORK COVERED

Program Work shall be limited to designated rehabilitation and renovation construction contracts bid and let by an Agency (or its Construction Manager where applicable) after the effective date of this Agreement with respect to rehabilitation and renovation work performed for an Agency on City-owned property under contracts let prior to December 31, 2018. Subject to the foregoing, and the exclusions below, such Program Work shall mean any and all contracts that predominantly involve the renovation, repair, alteration, rehabilitation or expansion of an existing City-owned building or structure within the five boroughs of New York City. Examples of Program Work include, but are not limited to, the renovation, repair, alteration and rehabilitation of an existing temporary or permanent structure, or an expansion of above ground structures located in the City on a City-owned building. This Program Work shall also include JOCS contracts, demolition work, site work, asbestos and lead abatement, painting services, carpentry services, and carpet removal and installation, to the extent incidental to such building rehabilitation of City-owned buildings or structures.

It is understood that, except where the City specifically applies this Project Labor Agreement to such work in its bid documents, Program Work does not include, and this Project Labor Agreement shall not apply to, any other work, including:

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1. Contracts let and work performed in connection with projects carried over, recycled from, or performed under bids or rebids relating to work that were bid prior to the effective date of this Agreement or after December 31, 2018;
2. Contracts procured on an emergency basis;
3. Contracts that do not exceed \$250,000;
4. Contracts for work on streets and bridges and for the closing or environmental remediation of landfills;
5. Contracts with not-for-profit corporations where the City is not awarding or performing the work performed for that entity;
6. Contracts with governmental entities where the City is not awarding or performing the work performed for that entity;
7. Contracts with electric utilities, gas utilities, telephone companies, and railroads, except that it is understood and agreed that these entities may only install their work to a demarcation point, e.g. a telephone closet or utility vault, the location of which is determined prior to construction and employees of such entities shall not be used to replace employees performing Program Work pursuant to this agreement;
8. Contracts for installation of information technology that are not otherwise Program Work;
9. Task Orders or Work Orders issued under JOCS or Requirements Contracts that do not exceed \$10,000, and JOCS or Requirements Contracts where the monetary value of such contracts predominantly involves such Task Orders or Work

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Orders; and

10. Contracts that do not exceed \$1 Million that are awarded pursuant to prequalified lists (PQLs) established by City agencies where entry on to the PQL is restricted to MWBEs, or a combination of MWBEs together with joint ventures which include at least one MWBE, or contractors who agree to subcontract at least 50% of the contract to MWBEs.

SECTION 2. TIME LIMITATIONS

In addition to falling within the scope of Article 3, Section 1, to be covered by this Agreement Program Work must be (1) advertised and let for bid after the effective date of this Agreement, and (2) let for bid prior to December 31, 2018, the expiration date of this Agreement. It is understood that this Agreement, together with all of its provisions, shall remain in effect for all such Program Work until completion, even if not completed by the expiration date of the Agreement. If Program Work otherwise falling within the scope of Article 3, Section 1 is not let for bid by the expiration date of this Agreement, this Agreement may be extended to that work by mutual agreement of the parties.

SECTION 3. EXCLUDED EMPLOYEES

The following persons are not subject to the provisions of this Agreement, even though performing Program Work:

A. Superintendents, supervisors (excluding general and forepersons specifically covered by a craft's Schedule A), engineers, professional engineers and/or licensed architects engaged in inspection and testing, quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians,

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non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of the Agency, New York City, or any other municipal or State agency, authority or entity, or employees of any other public employer, even though working on the Program site while covered Program Work is underway;

C. Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of project components, materials, equipment or machinery or involved in deliveries to and from the Program site, except to the extent they are lawfully included in the bargaining unit of a Schedule A agreement;

D. Employees of the Construction Manager (except that in the event the Agency engages a Contractor to serve as Construction Manager, then those employees of the Construction Manager performing manual, on site construction labor will be covered by this Agreement);

E. Employees engaged in on-site equipment warranty work unless employees are already working on the site and are certified to perform warranty work;

F. Employees engaged in geophysical testing other than boring for core samples;

G. Employees engaged in laboratory, specialty testing, or inspections, pursuant to a professional services agreement between the Agency, or any of the Agency's

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other professional consultants, and such laboratory, testing, inspection or surveying firm;
and

H. Employees engaged in on-site maintenance of installed equipment or systems which maintenance is awarded as part of a contract that includes Program Work but which maintenance occurs after installation of such equipment or system and is not directly related to construction services.

SECTION 4. NON-APPLICATION TO CERTAIN ENTITIES

This Agreement shall not apply to those parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor which do not perform Program Work. It is agreed that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among the Agency (including in its capacity as Construction Manager) or any Contractor. The Agreement shall further not apply to any New York City or other municipal or State agency, authority, or entity other than a listed Agency and nothing contained herein shall be construed to prohibit or restrict the Agency or its employees, or any State, New York City or other municipal or State authority, agency or entity and its employees, from performing on or off-site work related to Program Work.

As the contracts involving Program Work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the Agency (or Construction Manager) for performance under the terms of this Agreement.

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ARTICLE 4- UNION RECOGNITION AND EMPLOYMENT

SECTION 1. PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all employees who are performing on-site Program Work, with respect to that work.

SECTION 2. UNION REFERRAL

A. The Contractors agree to employ and hire craft employees for Program Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions' area collective bargaining agreements. Notwithstanding this, Contractors shall have sole right to determine the competency of all referrals; to determine the number of employees required; to select employees for layoff (subject to Article 5, Section 3); and the sole right to reject any applicant referred by a Local Union, subject to the show-up payments. In the event that a Local Union is unable to fill any request for qualified employees within a 48 hour period after such requisition is made by a Contractor (Saturdays, Sundays and holidays excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Program Work within its jurisdiction from any source other than referral by the Union.

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B. A Contractor may request by name, and the Local will honor, referral of persons who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.

No more than twelve per centum (12%) of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions above. Under this provision, name referrals begin with the eighth employee needed and continue on that same basis.

C. Notwithstanding Section 2(B), above, certified MWBE contractors for which participation goals are set forth in New York City Administrative Code §6-129, that are not signatory to any Schedule A CBAs, with contracts valued at or under five hundred thousand (\$500,000), may request by name, and the Local will honor, referral of the second (2nd), fourth (4th), sixth (6th), and eighth (8th) employee, who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 work days prior to the contract award.

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For such contracts valued at above \$500,000 but less than \$1 million, the Local will honor referrals by name of the second (2nd), fifth (5th), and eighth (8th) employee subject to the foregoing requirements. In both cases, name referrals will thereafter be in accordance with Section 2(B), above.

D. Where a certified MWBE Contractor voluntarily enters into a Collective Bargaining Agreement ("CBA") with a BCTC Union, the employees of such Contractor at the time the CBA is executed shall be allowed to join the Union for the applicable trade subject to satisfying the Union's basic standards of proficiency for admission.

SECTION 3. NON-DISCRIMINATION IN REFERRALS

The Council represents that each Local Union hiring hall and referral system will be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

SECTION 4: MINORITY, FEMALE, LOCAL AND SECTION 3 REFERRALS

In the event a Local Union either fails, or is unable to refer qualified minority or female applicants in percentages equaling the workforce participation goals adopted by the City and set forth in the Agency's (or, if applicable, Construction Manager's) bid

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specifications, within 48 hours of the request for same, the Contractor may employ qualified minority or female applicants from any other available source.

In the event that the City or a City agency determines to adopt local workforce participation goals to be set forth in an Agency's (or, if applicable Construction Manager's) bid specifications, the City and BCTC will work together to seek agreement on appropriate goals to be set forth in applicable bid documents and to be subject to the provisions of this section.

For any Program Work that may become subject to requirements under Section 3 of the Housing and Urban Development Act of 1968, as amended by the Housing and Community Development Act of 1992, and any rules, including new or revised rules, that may be published thereunder, the Local Unions will acknowledge the Section 3 obligations of the Construction Manager or Contractor, as applicable, and agree to negotiate a method to implement this Article in a manner that would allow the Construction Manager or Contractor to meet its Section 3 obligations to the greatest extent feasible, and to post any required notices in the manner required by Section 3. The parties also acknowledge that the Construction Manager and Contractor may also fulfill its Section 3 requirements on Program Work by promoting opportunities for excluded employees, as defined by Article 3, Section 3 of this Agreement, on Program Work and, to the extent permitted by Section 3, by promoting opportunities for craft and other employees on non-Program Work.

SECTION 5. CROSS AND QUALIFIED REFERRALS

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions

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will exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

SECTION 6. UNION DUES

All employees covered by this Agreement shall be subject to the union security provisions contained in the applicable Schedule A local agreements, as amended from time to time, but only for the period of time during which they are performing on-site Program Work and only to the extent of tendering payment of the applicable union dues and assessments uniformly required for union membership in the Local Unions which represent the craft in which the employee is performing Program Work. No employee shall be discriminated against at any Program Work site because of the employee's union membership or lack thereof. In the case of unaffiliated employees, the dues payment will be received by the Local Unions as an agency shop fee.

SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor except where otherwise provided by specific provisions of an applicable Schedule A, and provided that all craft forepersons shall be experienced and qualified journeypersons in their trade as determined by the appropriate Local Union. All forepersons shall take orders exclusively from the designated Contractor representatives. Craft forepersons shall be designated as working forepersons at the request of the Contractor, except when an existing local Collective Bargaining Agreement prohibits a foreperson from working when the craft persons he is leading exceed a specified number.

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SECTION 8. ON CALL REPAIR REFERRALS

A. When an Agency awards a contract that requires the Contractor to have employees available on short notice to make time sensitive repairs with such contract requiring the Contractor to respond within as little as two hours from the time the Contractor is contacted by the Agency ("On Call, Repair Contract"), the Contractor will, within ten (10) days of being awarded an On Call, Repair Contract subject to this Agreement, notify the appropriate affiliated Union that it has been awarded such a contract and immediately enter into good faith negotiations with such relevant affiliated Union to establish a procedure to receive time sensitive referrals from such affiliated Union(s).

B. In the event the Contractor and the relevant affiliated Union(s) are unable to negotiate a specific, mutually agreeable procedure for on call repair referral procedure within twenty (20) days of commencement of negotiations or prior to commencement of performance of the contract, whichever is earlier, the Contractor and the relevant affiliated Unions will follow the following procedure:

1. Upon notification by a Contractor that it has been awarded an On Call Repair Contract pursuant to paragraph A above, each relevant affiliate Union shall provide the Contractor with the name and twenty four (24) hour contact information of an On Call, Repair Contract contact person for urgent on call repair referrals.

2. The relevant affiliated Unions shall prepare a list of individuals eligible and prepared for referral on an immediate basis to respond to the on call repair contractor. Such list shall be provided to and in the possession of the designated on call repair contact person for the affiliated Union and available for immediate reference.

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3. Individuals on such list must be able to comply with the Contractor's response time pursuant to contract requirements.

4. The Union's On Call, Repair Contract contact person shall respond to a contractor's request for referrals within a reasonable time of the request so that compliance with the contract shall be possible.

C. In the event that the Contractor makes a request for an on call referral that is compliant with this procedure and a Union is not able to respond to the request, that Union will be deemed to have waived the forty-eight (48) hour referral rule contained in Section 2 above and the Contractor may employ qualified applicants from any other available source that can meet contract requirements for that time sensitive on call repair work only; provided, however, that any work related to the repair work that is not of a time sensitive nature under the contract shall comply with Section 2. If a Union fails to timely refer a worker and the Contractor employs other workers, the Contractor will e-mail the agency within 72 hours and the agency will forward that e-mail to the designated Labor Management Committee contacts.

ARTICLE 5- UNION REPRESENTATION

SECTION 1. LOCAL UNION REPRESENTATIVE

Each Local Union representing on-site employees shall be entitled to designate in writing (copy to Contractor involved and Construction Manager) one representative, and/or the Business Manager, who shall be afforded access to the Program Work site during such time as bargaining unit work is occurring and subject to otherwise applicable policies pertaining to visitors to the site.

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SECTION 2. STEWARDS

A. Each Affiliated Union shall have the sole discretion to designate any journey person as a Steward and an alternate Steward. The Union shall notify the Owner and/or Construction Manager as well as the Contractor of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. All Stewards shall be working Stewards.

B. In addition to their work as an employee, the Steward shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor. Each Steward shall be concerned with the employees of the Steward's trade and, if applicable, subcontractors of their Contractor, but not with the employees of any other trade Contractor. No Contractor shall discriminate against the Steward in the proper performance of Union duties.

C. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

SECTION 3. LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A provision, such provision shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required.

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In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

ARTICLE 6- MANAGEMENT'S RIGHTS

SECTION 1. RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to, the right to: direct the work force, including determination as to the number of employees to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; require compliance with the directives of the Agency including standard restrictions related to security and access to the site that are equally applicable to Agency employees, guests, or vendors; or the discipline or discharge for just cause of its employees; assign and schedule work; promulgate reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work; and, the requirement, timing and number of employees to be utilized for overtime work. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual, as determined by the Contractor, Agency and/or Construction Manager and/or joint working efforts with other employees shall be permitted or observed.

SECTION 2. MATERIALS, METHODS & EQUIPMENT

There shall be no limitation or restriction upon the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast,

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pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source; provided, however, that where there is a Schedule "A" that includes a lawful union standards and practices clauses, then such clause as set forth in Schedule A Agreements will be complied with, unless there is a lawful Agency specification (or specification issued by a Construction Manager which would be lawful if issued by the Agency directly) that would specifically limit or restrict the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices, and which would prevent compliance with such Schedule A clause. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor. There shall be no restrictions as to work which is performed off-site for Program Work.

ARTICLE 7- WORK STOPPAGES AND LOCKOUTS

SECTION 1. NO STRIKES-NO LOCK OUT

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at the Program Work site for any reason by any Union or employee against any Contractor or employer. There

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shall be no other Union, or concerted or employee activity which disrupts or interferes with the operation of the Program Work or the objectives of the Agency at any Program Work site. In addition, failure of any Union or employee to cross any picket line established by any Union, signatory or non-signatory to this Agreement, or the picket or demonstration line of any other organization, at or in proximity to a Program Work site where the failure to cross disrupts or interferes with the operation of Program Work is a violation of this Article. Should any employees breach this provision, the Unions will use their best efforts to try to immediately end that breach and return all employees to work. There shall be no lockout at a Program Work site by any signatory Contractor, Agency or Construction Manager.

SECTION 2. DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 days.

SECTION 3. NOTIFICATION

If a Contractor contends that any Union has violated this Article, it will notify the Local Union involved advising of such fact, with copies of the notification to the Council. The Local Union shall instruct and order, the Council shall request, and each shall otherwise use their best efforts to cause, the employees (and where necessary the Council shall use its best efforts to cause the Local Union), to immediately cease and desist from any violation of this Article. If the Council complies with these obligations it shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union

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and its members will not be liable for any unauthorized acts of the Council. Failure of a Contractor or the Construction Manager to give any notification set forth in this Article shall not excuse any violation of Section 1 of this Article.

SECTION 4. EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson or Richard Adelman; who shall alternate (beginning with Arbitrator J.J. Pierson) as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next Arbitrator on the list shall be called. Copies of such notification will be simultaneously sent to the alleged violator and Council.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the Local Union involved, the Council and the Construction Manager, hold a hearing within 48 hours of receipt of the notice invoking the procedure if it is contended that the violation still exists. The hearing will not, however, be scheduled for less than 24 hours after the notice required by Section 3, above.

C. All notices pursuant to this Article may be provided by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the Arbitrator, Contractor, Construction Manager and Local Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side

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to present their case, and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section 1, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any.) The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. The Agency and Construction Manager (or such other designee of the Agency) may participate in full in all proceedings under this Article.

F. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union or Contractor involved, and the Construction Manager.

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

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H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

SECTION 1. SUBJECTS

The Program Labor Management Committee will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interests; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review efforts to meet applicable participation goals for MWBEs and workforce participation goals for minority and female employees.

SECTION 2. COMPOSITION

The Committee shall be jointly chaired by a designee of the Agency and the President of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The parties may mutually designate an

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MWBE representative to participate in appropriate Committee discussions. The Committee may conduct business through mutually agreed upon sub-committees.

ARTICLE 9- GRIEVANCE & ARBITRATION PROCEDURE

SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below, provided, in all cases, that the question, dispute or claim arose during the term of this Agreement. Grievances shall include the City contract number and the Program Work address; such information is posted at the Program Work Site if already commenced, and is available in the City Record and Notice to Proceed for projects not already commenced.

Grievances as to whether a scope of work is included or excluded from this Agreement shall be submitted to the Labor Management Committee (LMC) in the first instance rather than Step 1 below. To be timely, such notice must be given no later than ten days prior to a bid opening if the grievance is challenging a determination by an Agency that the contract is not subject to this Agreement. For other grievances as to contractor scope of work issues, notice of such challenges shall be submitted to the LMC within 7 calendar days after the act, occurrence or event giving rise to the grievance. If the scope of work grievance is not resolved within 21 days of its submission to the LMC, then the grievance may proceed directly to Step 3 below.

Step 1:

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(a) When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site representative of the involved Contractor and the Construction Manager. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Construction Manager (or designee) as creating a precedent.

(b) Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

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A Step 2 grievance shall be filed with the Agency, the BCTC, the Contractor, and, if the grievance is against a subcontractor, the subcontractor. The Business Manager or designee of the involved Local Union, together with representatives of the involved Contractor, Council, the Construction Manager (or designee), and, if the grievance is against a subcontractor, the subcontractor, shall meet in Step 2 within 7 calendar days of service of the written grievance to arrive at a satisfactory settlement. The BCTC shall schedule the Step 2 meeting.

Step 3:

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Construction Manager or designee) to the BCTC. In the event the matter is not resolved at Step 2, either J.J. Pierson or Richard Adelman, who shall act, alternately (beginning with Arbitrator J.J. Pierson), as the Arbitrator under this procedure, shall be designated at the Step 2 hearing and the BCTC will notify the arbitrator of his designation. After such notification by the BCTC, the local demanding arbitration shall within a reasonable time request the arbitrator to schedule the matter for an arbitration hearing date. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

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(b) Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Construction Manager (or designee), involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

SECTION 2. LIMITATION AS TO RETROACTIVITY

No arbitration decision or award, with the exception of those related to compliance with requirements to pay prevailing wages and supplements in accordance with federal or State law, may provide retroactivity of any kind exceeding 60 calendar days prior to the date of service of the written grievance on the Construction Manager and the involved Contractor or Local Union.

**SECTION 3. PARTICIPATION BY AGENCY AND/OR CONSTRUCTION
MANAGER**

The Agency and Construction Manager (or such other designee of the Agency) shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

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ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 1. NO DISRUPTIONS

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

SECTION 2. ASSIGNMENT

All Program Work assignments shall be made by the Contractor to unions affiliated with the BCTC consistent with the New York Plan for the Settlement of Jurisdictional Disputes ("New York Plan") and its Greenbook decisions, if any. Where there are no applicable Greenbook decisions, assignments shall be made in accordance with the provisions of the New York Plan and local industry practice.

SECTION 3. NO INTERFERENCE WITH WORK

There shall be no interference or interruption of any kind with the Program Work while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award.

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ARTICLE 11 - WAGES AND BENEFITS

SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the hourly wage rates applicable for those classifications as required by the applicable prevailing wage laws.

SECTION 2. EMPLOYEE BENEFITS

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trustee employee benefit funds designated in the applicable Collective Bargaining Agreements in Schedule A (in the appropriate Schedule A amounts), provided that such benefits are required to be paid on public works under any applicable prevailing wage law. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if similarly required under applicable prevailing wage law. Contractors, not otherwise contractually bound to do so, shall not be required to contribute to benefits, trusts or plans of any kind which are not required by the prevailing wage law provided, however, that this provision does not relieve Contractors signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA.

B. 1. Notwithstanding Section 2 (A) above, and subject to 2 (B)(2) below, Contractors who designate employees pursuant to Article 4, Section 2 (B) and (C) ("core" employees) that are not signatory to a Schedule A Agreement and who maintain bona fide private benefit plans that satisfy the requirements of Section 220 of the Labor Law, may

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satisfy the above benefit obligation with respect to those employees by providing those employees with coverage under their private benefit plans (to the extent consistent with Section 220). The total benefit payments to be made on behalf of each such employee must be equal to the total Section 220 supplement amount and any shortfall must be paid by cash supplement to the employee.

2. A contractor that will satisfy its Section 220 obligations in accordance with subsection 2(B)(1) above shall make available to the Agency at the time of contract award a complete set of plan documents for each non-Schedule A benefit plan into which contributions will be made and/or coverage provided pursuant to the provisions of Section 2(B)(1) above. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220.

3. The City shall verify that the alternate benefit plan(s), together with any cash supplement to the employee, is compliant with Section 220 prior to awarding the Contractor a contract covered by this Agreement. In the event the Contractor's alternate benefit plan(s), together with any cash supplement to the employee, is determined to be compliant with Section 220 and will be utilized by the Contractor on behalf of Article 4, Section 2(B) and (C) core employees, the Local Unions have no duty to enforce the Contractor's obligations on the alternate benefit plan(s) as they are not party to the alternate plan(s) or privy to the terms and conditions of the plan obligations. In the event the City determines the alternate benefit plan(s), together with any cash supplement to the employee, is not compliant with Section 220, the Contractor may, upon executing a Letter

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of Assent, satisfy its obligations for all employees, including core employees, by contributing to the Schedule A benefit plans in accordance with the terms of the Schedule A Agreements.

C. The Contractors agree to be bound by the written terms of the legally established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to Program Work done under this Agreement and only for those employees to whom this Agreement requires such benefit payments.

D. 1. To the extent consistent with New York City's Procurement Policy Board Rules with respect to prompt payment, as published at www.nyc.gov/ppb, §4-06(e), and in consideration of the unions' waiver of their rights to withhold labor from a contractor or subcontractor delinquent in the payment of fringe benefits contributions ("Delinquent Contractor"); the Agency agrees that where any such union and/or fringe benefit fund shall notify the Agency, the General Contractor, and the Delinquent Contractor in writing with back-up documentation that the Delinquent Contractor has failed to make fringe benefit contributions to it as provided herein and the Delinquent Contractor shall fail, within ten (10) calendar days after receipt of such notice, to furnish either proof of such payment or notice that the amount claimed by the union and/or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by

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the Delinquent Contractor which the union or fringe benefit fund claims to be due it, and shall remit the amount when and so withheld to the fringe benefit fund and deduct such payment from the amounts then otherwise due and payable to the General Contractor, which payment shall, as between the General Contractor and the Agency, be deemed a payment by the Agency to the General Contractor; provided however, that in any month, such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. The union or its employee benefit funds shall include in its notification of delinquent payment of fringe benefits only such amount it asserts the Delinquent Contractor failed to pay on the specific project against which the claim is made and the union or its employee benefit funds may not include in such notification any amount such Delinquent Contractor may have failed to pay on any other City or non-City project.

2. In addition, where a union or employee benefit fund gives notice to the City that a Contractor is Delinquent as defined in subsection 2(D)(1) above and the City determines that the notice includes appropriate back-up documentation that the Contractor is delinquent, the City will promptly, but not later than twenty (20) days after receipt of the notice, provide a copy of said notice to City Agencies. In the event the City determines there is insufficient back-up documentation, it will notify the appropriate union and/or fringe benefit fund promptly, but not later than twenty (20) days after receipt of the Delinquency Notice, and shall include notice of what additional documentation is requested. Any determination by the City that there is insufficient back-up must be reasonable. This provision is intended to enhance compliance with the prevailing wage

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law and the PLA with respect to the payment of fringe benefits, and is not intended as a substitute for the resolution of a disputed claim pursuant to any applicable law or agreement.

The City and the relevant Agency(s) will thereafter require the Delinquent Contractor to provide cancelled checks or other equivalent proof of payment of benefit contributions that have come due, to be submitted with certified payroll reports for all Program Work covered by this Agreement on which the Delinquent Contractor is engaged, for at least a one-year period or such earlier period if the Contractor is ultimately determined not be a Delinquent Contractor. Such proof of payment when required is a condition of payment of the Delinquent Contractor's invoices by any entity, including, but not limited to, the City, the relevant Agency(s), Construction Manager, General Contractor, the prime or higher level subcontractor, as is appropriate under the Delinquent Contractor's engagement. The union and the funds shall upon request receive copies of the certified payrolls, cancelled checks, or other proof of payment from the City and/or the relevant Agency(s).

E. In the event the General Contractor or Delinquent Contractor shall notify the Agency as above provided that the claim of the union or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor that the union and/or fringe benefit fund claims to be due it, pending resolution of the dispute pursuant to the union's Schedule A agreement, and the amount shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the

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Delinquent Contractor and union or employee benefit fund shall otherwise agree as to the disposition thereof; provided however, that such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. In the event the Agency shall be required to withhold amounts from a General Contractor for the benefit of more than one fringe benefit fund, the amounts so withheld in the manner and amount prescribed above shall be applied to or for such fund in the order in which the written notices of nonpayment have been received by the Agency, and if more than one such notice was received on the same day, proportionately based upon the amount of the union and/or fringe benefit fund claims received on such day. Nothing herein contained shall prevent the Agency from commencing an interpleader action to determine entitlement to a disputed payment in accordance with section one thousand six of the civil practice law and rules or any successor provision thereto.

F. Payment to a fringe benefit fund under this provision shall not relieve the General Contractor or Delinquent Contractor from responsibility for the work covered by the payment. Except as otherwise provided, nothing contained herein shall create any obligation on the part of the Agency to pay any union or fringe benefit fund, nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the union/fund and/or fringe benefit and the Agency.

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ARTICLE 12- HOURS OF WORK, PREMIUM PAYMENTS,

SHIFTS AND HOLIDAYS

SECTION 1. WORK WEEK AND WORK DAY

A. The standard work week shall consist of 40 hours of work at straight time rates, Monday through Friday, 8 hours per day, plus ½ hour unpaid lunch period. The standard work week may be reduced to 35 or 37 ½ hours of work at straight time rates, Monday to Friday, 7 or 7 ½ hours per day, plus ½ hour unpaid lunch period in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.

B. In accordance with Program needs, there shall be flexible start times with advance notice from Contractor to the Union. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m., for an 8 hour day, and up to 7:30 p.m. for a 10 hour day. The Evening Shift shall commence between the hours of 3:00 p.m. and 6:00 p.m., unless different times are necessitated by the Agency's phasing plans on specific projects. The Night Shift shall commence between the hours of 11:00 p.m. and 2:00 a.m., unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

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C. Scheduling — Except as provided above, Monday through Friday is the standard work week; 8 hours of work plus ½ hour unpaid lunch. Notwithstanding any other provision of this Agreement, a contractor may schedule a four day work week, 10 hours per day at straight time rates, plus a ½ hour unpaid lunch, at the commencement of the job.

D. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hour schedules to be worked or such lesser notice as may be mutually agreed upon.

SECTION 2. OVERTIME

Overtime shall be paid for any work (i) over an employee's regularly scheduled work day, i.e., work over eight (8) hours in a day where 5/8s is scheduled, work over ten (10) hours in a day where 4/10s is scheduled, or work over seven (7) or seven and one half (7 ½) hours where such hours are scheduled pursuant to Article 12, section 1(A) and (ii) over forty (40) hours in a week, or over thirty five (35) or thirty seven and one-half (37 ½) where such hours are scheduled pursuant to Article 12, section 1(A). Overtime shall be paid at time and one half (1½) Monday through Saturday. All overtime work performed on Sunday and Holidays will be paid pursuant to the applicable Schedule A. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize

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overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

SECTION 3. SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Program Work schedules and existing Program Work conditions including the minimization of interference with the mission of the Agency. It is not necessary to work a day shift in order to schedule a second or third shift, or a second shift in order to schedule a third shift, or to schedule all of the crafts when only certain crafts or employees are needed. Shifts must have prior approval of the Agency or Construction Manager, and must be scheduled with not less than five work days notice to the Local Union or such lesser notice as may be mutually agreed upon.

B. Second and/or Third Shifts/Saturday and/or Sunday Work - - The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m., subject to different times necessitated by the Agency phasing plans on specific projects. There shall be no reduction in shift hour work. With respect to second and third shift work there shall be a 5% shift premium. No other premium or other payments for such work shall be required unless such work is in excess of the employee's regularly scheduled work week, i.e., 40 hours in the week or thirty five (35) or thirty seven and one half (37 ½) pursuant to Article 12, section 1(A). All employees within a classification performing Program Work will be paid at the same wage rate regardless of the shift or work scheduled work, subject only to the foregoing provisions.

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C. Flexible Starting Times - Shift starting times will be adjusted by the Contractor as necessary to fulfill Program Work requirements subject to the notice requirements of paragraph A.

SECTION 4. HOLIDAYS

A. Schedule - There shall be nine (9) recognized holidays on the Project:

New Year's Day

Martin Luther King Day President's Day

Memorial Day Veteran's Day

Labor Day Thanksgiving Day

Independence Day Christmas Day

All said holidays shall be observed on the calendar date except those holidays which occur on Saturday shall be observed on the previous Friday and those that occur on Sunday shall be observed on the following Monday.

B. Payment - Regular holiday pay, if any, for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4(A) above shall be recognized or observed.

SECTION 5. SATURDAY MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on

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a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day and such time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked.

SECTION 6. REPORTING PAY

A. Employees who report to the work location pursuant to their regular schedule and who are not provided with work shall be paid two hours reporting pay at straight time rates. An employee whose work is terminated early by a Contractor due to severe weather, power failure, fire or natural disaster or for similar circumstances beyond the Contractor's control, shall receive pay only for such time as is actually worked. In other instances in which an employee's work is terminated early (unless provided otherwise elsewhere in this Agreement), the employee shall be paid for his full shift. Contractors shall not be permitted to call, text or email or voicemail employees in advance of their regularly scheduled shift starting time to avoid reporting pay. Notwithstanding the above, in the event that the National Weather Service issues a weather advisory for the area in which the work location is situated, and the entire project is shut down as a result of the Weather Advisory, the contractor shall be permitted to speak to employees no less than four (4) hours in advance of their shift starting time, unless the Local Union consents to a shorter notice in writing, to advise them not to report to work due to the National Weather Service advisory, and employees who are so notified shall not receive two (2) hours reporting pay if they report to the work location. The contractor shall make every effort to

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notify each employee directly and confirm that notification has been received. Voice, text, and email messages left for employees without confirmation of delivery and receipt by employee do not constitute sufficient notice under this provision.

B. When an employee, who has completed their scheduled shift and left the Program Work site, is "called out" to perform special work of a casual, incidental or irregular nature, the employee shall receive overtime pay at the rate of time and one-half of the employee's straight time rate for hours actually worked.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special premium payments or reduction in shift hours of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article and except where an applicable Schedule A requires a full weeks' pay for forepersons.

SECTION 7. PAYMENT OF WAGES

A. Termination- Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of lay off or discharge.

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SECTION 8. EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

SECTION 9. INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than a full day's pay in accordance with the employee's regularly scheduled work day under Article 12, section (1)(A). Further, the employee shall be rehired at such time as able to return to duties provided there is still Program Work available for which the employee is qualified and able to perform.

SECTION 10. TIME KEEPING

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

SECTION 11. MEAL PERIOD

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts or which provides for staggered lunch periods within a

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craft or trade. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

SECTION 12. BREAK PERIODS

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Where 4/10s are being worked there shall be a morning and an afternoon coffee break.

ARTICLE 13 - APPRENTICES

SECTION 1. RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio permitted by the New York State Department of Labor or the maximum allowed per trade. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate Schedule A. The parties encourage, as an appropriate source of apprentice recruitment consistent with the rules and operations of the affiliated unions' apprentice-programs, the use of the Edward J. Malloy Initiative for Construction Skills, Non-Traditional Employment for Women and Helmets to Hardhats.

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ARTICLE 14-SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 1. SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA and safety requirements are at all times maintained on the Program Work site and the employees and Unions agree to cooperate fully with these efforts to the extent consistent with their rights and obligations under the law. Employees will cooperate with employer safety policies and will perform their work at all times in a safe manner and protect themselves and the property of the Contractor and Agency from injury or harm, to the extent consistent with their rights and obligations under the law. Failure to do so will be grounds for discipline, including discharge.

SECTION 2. CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the Construction Manager for this Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

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SECTION 3. INSPECTIONS

The Contractors and Construction Manager retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

ARTICLE 15 - TEMPORARY SERVICES

Temporary services, i.e. all temporary heat, climate control, water, power and light, shall only be required upon the determination of the Agency or Construction Manager, and when used shall be staffed and assigned to the appropriate trade(s) with jurisdiction. Temporary services shall be provided by the appropriate Contractors' existing employees during working hours in which a shift is scheduled for employees of this Contractor. The Agency or Construction Manager may determine the need for temporary services requirements during non-working hours, and when used shall be staffed and assigned to the appropriate trades(s). There shall be no stacking of trades on temporary services, provided this does not constitute a waiver of primary trade jurisdiction. In the event a temporary system component is claimed by multiple trades, the matter shall be resolved through the New York Plan for Jurisdictional Disputes.

ARTICLE 16 - NO DISCRIMINATION

SECTION 1. COOPERATIVE EFFORTS

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of creed, race, color, religion, sex, sexual orientation, national origin, marital status, citizenship status, disability, age or any other status provided by law, in any manner prohibited by law or regulation.

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SECTION 2. LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 17- GENERAL TERMS

SECTION 1. PROJECT RULES

A. The Construction Manager and the Contractors shall establish such reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work. These rules will be explained at the pre-job conference and posted at the Program Work sites and may be amended thereafter as necessary. Notice of amendments will be provided to the appropriate Local Union. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is for cause.

B. The parties adopt and incorporate the BCTC's Standards of Excellence as annexed hereto as Exhibit "B".

SECTION 2. TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

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SECTION 3. SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 4. TRAVEL ALLOWANCES

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

SECTION 5. FULL WORK DAY

Employees shall be at their work area at the starting time established by the Contractor, provided they are provided access to the work area. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

SECTION 6. COOPERATION AND WAIVER

The Construction Manager, Contractors and the Unions will cooperate in seeking any NYS Department of Labor, or any other government, approvals that may be needed for implementation of any terms of this Agreement. In addition, the Council, on their own behalf and on behalf of its participating affiliated Local Unions and their individual members, intend the provisions of this Agreement to control to the greatest extent permitted by law, notwithstanding contrary provisions of any applicable prevailing wage, or other, law and intend this Agreement to constitute a waiver of any such prevailing wage, or other, law to the greatest extent permissible only for work within the scope of this Agreement, including specifically, but not limited to those provisions relating to shift, night, and similar differentials and premiums. This Agreement does not, however,

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constitute a waiver or modification of the prevailing wage schedules applicable to work not covered by this Agreement.

ARTICLE 18. SAVINGS AND SEPARABILITY

SECTION 1. THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

SECTION 2. THE BID SPECIFICATIONS

In the event that the Agency's (or Construction Manager's) bid specifications, or other action, requiring that a successful bidder (and subcontractor) become signatory to this Agreement is enjoined, on either an interlocutory or permanent

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basis, or is otherwise determined to be in violation of law, or may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, such requirement (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the Agreement shall remain in full force and effect to the extent allowed by law and to the extent no funding or exemption is lost). In such event, the Agreement shall remain in effect for contracts already bid and awarded or in construction only where the Agency and Contractor voluntarily accepts the Agreement. The parties will enter into negotiations as to modifications to the Agreement to reflect the court or other action taken and the intent of the parties for contracts to be let in the future.

SECTION 3. NON-LIABILITY

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

SECTION 4. NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.

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ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 1. CHANGES TO AREA CONTRACTS

A. Schedule A to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements that are the basis for the Schedule A notify the Agency and Construction Manager in writing of the changes agreed to in that Area Collective Bargaining which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule A collective bargaining agreements will not apply to work under this Agreement if such provisions are less favorable to those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied on Program Work if it may be construed to apply exclusively, or predominantly, to work covered by this Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Program Work by any Local Union involved in the renegotiation of Area

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Local Collective Bargaining Agreements nor shall there be any lock-out on such Program Work affecting a Local Union during the course of such renegotiations.

ARTICLE 20 - WORKERS' COMPENSATION ADR

SECTION 1.

An ADR program may be negotiated and participation in the ADR Program will be optional by trade.

ARTICLE 21 - HELMETS TO HARDHATS

SECTION 1.

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the New York City Helmets to Hardhats Program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

SECTION 2.

The Unions and Contractors agree to coordinate with the Program to create and maintain an integrated database of veterans interested in working on this Project and of

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apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

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IN WITNESS WHEREOF the parties have caused this Agreement to be executed and
effective as of the ___ day of _____, _____

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL
OF GREATER NEW YORK AND VICINITY

BY: _____
Gary LaBarbera
President

FOR NEW YORK CITY

BY:
Anthony Shorris
First Deputy Mayor

APPROVED AS TO FORM:

ACTING CORPORATION COUNSEL
NEW YORK CITY

LIST OF SIGNATORY UNIONS

Boiler Makers Local No. 5
Carpenters District Council
Cement Masons No. 780
Concrete Workers, District Council No. 16
Derrickmen and Riggers, Local Union No. 197
Drywall Tapers 1974, District Council 9
Electrical Workers Local No. 3
Glaziers Local Union No. 1087 District Council 9
Heat & Frost Insulators, Local Union No. 12A
Heat & Frost Insulators, Local Union No. 12
Iron Workers District Council
Iron Workers Local Union No. 40
Iron Workers Local No. 361
Laborers Local No. 78, Asbestos & Lead Abatement
Laborers Local 1010 Pavers and Road Builders District Council
Laborers 79 Construction and General Building Laborers
Laborers Local No. 731 Excavators
Mason Tenders District Council
Metal Lathers Local No. 46
Metal Polishers District Council 9
Ornamental Iron Workers Local No. 580
Painters District Council 9
Plumbers Local No. 1
Painters, Decorators & Wallcoverers District Council 9
Painters Structural Steel No. 806
Plasterers Local Union No. 262
Roofers & Waterproofers Local 8
Steamfitters Local Union No. 638
Sheet Metal Workers Local No. 28
Sheet Metal Workers Local No. 137
Teamsters Local Union No. 282
Teamsters Local Union 814
Teamsters Local No. 813 Private Sanitation
Tile, Marble & Terrazzo B.A.C. Local Union No. 7

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SCHEDULE "A"

Architectural and Ornamental Iron Workers Local Union 580, AFL-CIO	Allied Building Metal Industries, Inc.
Building, Concrete, Excavating & Common Laborers Local 731	Independent
Building, Concrete, Excavating & Common Laborers Local 731	Members of the General Contractors Association of New York, Inc.
District Council No. 9 IUPAT Glaziers Local 1087	Window and Plate Glass Dealers Association
Drywall Tapers and Pointers Local 1974 affiliated with International Union of Painters & Allied Trades and Drywall Taping Contractor's Association & Association of Wall-Ceiling & Carpentry Industries, NYC, Inc.	Independent
Enterprise Association of Steamfitters and Apprentices Local 638	Mechanical Contractors Association of NY, Inc.
Enterprise Association of Steamfitters and Apprentices Local 638	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers International Union of North America AFL-CIO	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers International Union of North America AFL-CIO	Member of the General Contractors Association of New York, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	Independent
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	The Insulation Contractors Association of New York City, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Independent

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International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Environmental Contractors Association, Inc.
International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO Local Lodge No. 5	Boilermakers Association of Greater New York
Local Union No. 3 International Brotherhood of Electrical Workers, AFL-CIO	New York Electrical Contractors Association
International Brotherhood of Teamsters, Local 282, High Rise contract	Building Contractors Association & Independents
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Cement League
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Independent
Local 8 Roofers, Waterproofers & Allied Workers	Roofing and Waterproofing Contractors Association of New York and Vicinity
Local Union 1 of the United Association of Journeymen and Apprentices of the Pipe-Fitting Industry of the United States and Canada	Association of Contracting Plumbers of the City of New York
Local Union Number 40 & 361 of Bridge, Structural Ornamental and Reinforcing Iron Workers AFL-CIO	Independent
Operative Plasterers' and Cement Masons' International Association Local No. 262	Independent
Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	Independent

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Painters and Allied Trades, AFL-CIO, District Council No. 9 (Painting and Protective Coatings, CBA)	The Association of Master Painters & Decorators of NY, Inc. and The Association of Wall, Ceiling & Carpentry Industries of NY, Inc. and The Window and Plate Glass Dealers Association
Sheet Metal Workers International Association, Local 28	Sheet Metal & Air Conditioning Contractors Association of New York City, Inc.
Sheet Metal Workers International Association, Local 137	The Greater New York Sign Association
Structural Steel and Bridge Painters Local 806, DC 9 International Union of Painters and Allied Trades, AFL-CIO	New York Structural Steel Painters Contractors Association
Teamsters Local 813	Independent
Teamsters Local 813	ESENY Corporation
Teamsters Local 814	Greater New York Movers and Warehousemen's Bargaining Group
The Cement Masons Union, Local 780	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A, Local 18A and Local 20)	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A, Local 18A and Local 20)	Independent

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local No. 1556	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Millwright Local 740	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Manufacturing Woodworkers Association of Greater New York Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Hoisting Trade Association of New York, Inc.
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Test Bolting Association

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	Building Contractors Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Association of Wall Ceiling & Carpentry Industries of New York, Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	The Cement League
The District Council of NYC and Vicinity of the United Brotherhood of Carpenters and Joiners of America	New York City Millwright Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	Greater New York Floor Covering Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Association of Architectural Metal & Glass
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Building Construction Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Local 2287	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Shop Carpenters	Independent
The Tile Setters and Tile Finishers Union of New York and New Jersey, Local 7 of the International Bricklayers and Allied Craftworkers	The Greater New York and New Jersey Contractors Association

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United Derricksmen & Riggers Association Local 197 of NY, LI, Westchester & Vicinity	Contracting Stonesetters Association Inc.
United Derricksmen & Riggers Association L 197 of NY, LI, Westchester and Vicinity	Building Stone and Pre-cast Contractors Association
International Union of Operating Engineers Local 14-14B	Building Contractors Association
International Union of Operating Engineers Local 14-14B	Contractors Association of Greater NY
International Union of Operating Engineers Local 14-14B	CCA
International Union of Operating Engineers Local 14-14B	The Cement League
International Union of Operating Engineers Local 14-14B	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 14-14B	Brick Association
International Union of Operating Engineers Local 14-14B	Independent
International Union of Operating Engineers Local 15	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 15-15A	General Contractors Association
International Union of Operating Engineers Local 15D	General Contractors Association
International Union of Operating Engineers Local 15D	Structural Steel Erectors

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International Union of Operating Engineers Local 15-15A	Building Contractors Association
International Union of Operating Engineers Local 15B	Building Contractors Association
International Union of Operating Engineers Local 15-15A	Contractors Association of Greater NY
International Union of Operating Engineers Local 15D	Contractors Association of Greater NY
International Union of Operating Engineers Local 15-15A	The Cement League
International Union of Operating Engineers Local 15D	The Cement League

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Project Labor Agreement - - Letter of Assent

Dear:

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

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

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

Provide description of the Work, identify craft jurisdiction(s) and all contract numbers below:

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Dated: _____

(Name of Contractor or subcontractor)

(Name of CM; GC; Contractor or
Higher Level Subcontractor)

(Authorized Officer & Title)

(Address)

(Phone) (Fax)

Contractor's State License

Sworn to before me this
____ day of _____,

Notary Public

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NEW YORK CITY BUILDING AND CONSTRUCTION TRADES COUNCIL
STANDARDS OF EXCELLENCE

The purpose of this Standard of Excellence is to reinforce the pride of every construction worker and the commitment to be the most skilled, most productive and safest workforce available to construction employers and users in the City of New York. It is the commitment of every affiliated local union to use our training and skills to produce the highest quality work and to exercise safe and productive work practices.

The rank and file members represented by the affiliated local unions acknowledge and adopt the following standards:

- *Provide a full days work for a full days pay;*
- *Safely work towards the timely completion of the job;*
- *Arrive to work on time and work until the contractual quitting time;*
- *Adhere to contractual lunch and break times;*
- *Promote a drug and alcohol free work site;*
- *Work in accordance with all applicable safety rules and procedures;*
- *Allow union representatives to handle job site disputes and grievances without resort to slowdowns, or unlawful job disruptions;*
- *Respect management directives that are safe, reasonable and legitimate;*
- *Respect the rights of co-workers;*
- *Respect the property rights of the owner, management and contractors.*

The Unions affiliated with the New York City Building and Construction Trades Council will expect the signatory contractors to safely and efficiently manage their jobs and the unions see this as a corresponding obligation of the contractors under this Standard of Excellence. The affiliated unions will expect the following from its signatory contractors:

- *Management adherence to the collective bargaining agreements;*
- *Communication and cooperation with the trade foremen and stewards;*
- *Efficient, safe and sanitary management of the job site;*
- *Efficient job scheduling to mitigate and minimize unproductive time;*
- *Efficient and adequate staffing by properly trained employees by trade;*
- *Efficient delivery schedules and availability of equipment and tools to ensure efficient job progress;*
- *Ensure proper blueprints, specifications and layout instructions and material are available in a timely manner*
- *Promote job site dispute resolution and leadership skills to mitigate such disputes;*
- *Treatment of all employees in a respectful and dignified manner acknowledging their contributions to a successful project.*

The affiliated unions and their signatory contractors shall ensure that both the rank and file members and the management staff shall be properly trained in the obligations undertaken in the Standard of Excellence.

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BUILD SAFE NYC Codes of Conduct

BuildSafeNYC establishes that all BTEA member companies and BCTG member unions establish minimum safety standards on all building construction projects in NYC as follows:

- 1. The workforce shall adhere to the minimum personal protective equipment (PPE) usage to include:
 - a. ANSI compliant Hard Hats (with ratchet suspension) at all times (supplied by employer)
 - b. Construction-type Work Boots at all times
 - c. Long Pants and shirts with at least short sleeves at all times (no shorts or tank tops)
 - d. ANSI compliant Eye Protection in their possession and used as needed (supplied by employer)
 - e. Adequate Hearing Protection in their possession and used as needed (supplied by employer)
 - f. High-Vis traffic vests at street level and when around heavy equipment (supplied by employer)
- 2. CM and Subcontractor management shall implement a fair and consistent disciplinary policy for all site personnel regarding the adherence to site safety rules and requirements. Likewise, a joint labor / management team will periodically assess project wide implementation of these Codes.
- 3. CM firms shall maintain minimum standards for workforce restroom, hygiene facilities and housekeeping, initially and throughout the duration of the project.
- 4. All personnel shall adhere to a strict policy against drug and alcohol possession and use on sites and during hours of work.
- 5. All personnel shall attend a site safety orientation prior to beginning work. Worker certifications of safety training for specific tasks such as fire watch, flagmen, and safety attendant must be verified.
- 6. No cell phones, portable media devices, radios or other devices that limit hearing and attention shall be used while working on sites.
- 7. Ground Fault Circuit Interrupters (GFCI) will be used on all power tools and extension cords.
- 8. Union trade representatives shall participate in a regularly scheduled site safety meeting on all projects regardless of size.
- 9. Extreme effort shall be made to isolate the public from all construction activity. Specifically, systems shall be put in place to control falling materials and pedestrian exposure. This should be a top priority for the entire project workforce.
- 10. Workers shall honor security access control systems to establish entry to sites by authorized personnel only, where applicable.
- 11. Fall protection management shall be a top project priority. Workers shall maintain and use necessary fall protection systems and procedures where appropriate. Engineering controls and work methods which eliminate, guard, or otherwise control fall hazards shall take priority over personal fall arrest system usage.
- 12. Where hazardous materials are present, projects shall implement efforts to communicate and control potential exposure to the workforce.

With Full Support and Endorsement of:

Joseph Caloth

Joseph Caloth, President & CEO
Building Trades Employers Association

BTEANYC
Building Trades Employers Association

Edward J. Kostig

Edward J. Kostig, President
Building and Construction Trades Council



<p><i>James Abadio</i> President Local Union 101 <i>John J. Morfi</i> President Local Union 102</p>	<p><i>Paul Salinger</i> President Local Union 103 <i>Edo Amoretti</i> President Local Union 104</p>	<p><i>Construction Management Firm</i> <i>Paul Salinger</i> President Local Union 105 <i>Edo Amoretti</i> President Local Union 106</p>	<p><i>Trade Unions</i> <i>John J. Morfi</i> President Local Union 107 <i>Paul Salinger</i> President Local Union 108</p>	<p><i>James Abadio</i> President Local Union 109 <i>John J. Morfi</i> President Local Union 110</p>	<p><i>Edward J. Kostig</i> President Local Union 111 <i>James Abadio</i> President Local Union 112</p>
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NOTICE TO BIDDERS

Please be advised that the City of New York has issued a new Standard Construction Contract. The new Contract, which is incorporated in this bid, is significantly different from the 2008 version previously used by the City. A listing of some of the significant changes is provided below. This notice is only a partial listing. Please refer to the Contract itself for a full understanding of the changes and the actual text of the changes that were made. The text of the revised Standard Construction Contract is the controlling document should there be any discrepancies between this notice and the Standard Construction Contract.

Significant changes include the following:

ARTICLE 11 DAMAGES CAUSED BY DELAYS

In 2008, the City embarked on a pilot project to test the use of new construction contract language altering the allocation of the risk of project delays, as between the City and the contractor. The City has determined to make the pilot project language the standard language for all City construction contracts. Accordingly, there is now one Standard City Construction Contract that it to be used by all agencies for all bids released after the release of the new contract. The damages for delay language is Article 11. Please note that changes have been made to the damages for delay provisions from the pilot to the adopted version.

ARTICLE 22 INSURANCE

Changes have been made to the insurance provisions, including incorporating requirements that the insurance provided comply with recent NYC Department of Buildings regulations specifying required dollar limits for CGL insurance for certain projects and requiring proof of builder's risk insurance prior to Work commencing rather than within 10 days of award.

ARTICLE 26 EXTRA WORK

The percentage paid for overhead for Extra Work pursuant to Section 26.1.11 is increased from 10% to 12% and the calculation of Worker's Compensation insurance costs reimbursed for Extra Work has been clarified.

ARTICLE 37 LABOR LAW REQUIREMENTS
ARTICLE 38 PAYROLL REPORTS

The provisions governing Labor Law provisions have been tightened, including requirements the employee identification cards include a photo (unless the requirement is waived), a prohibition on cash payments to employees and subcontractors, and clear enforcement authority requirements.

ARTICLE 70 ELECTRONIC FILING

A provision is added to make mandatory the electronic filing of certain alteration permits with the Department of Buildings.

Other significant changes include the following:

ARTICLE 7 INDEMNIFICATION

Changes have been made to the indemnification provisions.

ARTICLE 14 FINAL ACCEPTANCE OF WORK
ARTICLE 44 SUBSTANTIAL COMPLETION PAYMENT

The Commissioner is no longer required to issue a substantial completion determination in addition to the already existing requirement that the Engineer issue a substantial completion determination and reach an agreement on a punch list of remaining work. Now, the Engineer, when issuing the punch list to the Contractor, must also include a proposed schedule for the completion of the punch list. The Contractor may propose an alternative schedule that is subject to the approval of the Engineer. If the Contractor fails to respond to the Engineer's proposed schedule, the Engineer's schedule is deemed accepted.

ARTICLE 15 LIQUIDATED DAMAGES

The contract is revised to match Schedule A to provide that liquidated damages are available only until substantial completion.

ARTICLE 17 SUBCONTRACTS

The requirements for prior approval of subcontractors, and for contractors to be responsible for the actions of their subcontractors, have been tightened. The requirement that the Contractor list subcontractors in the City's Payee Information Portal has been added; the provision was previously attached as a rider.

ARTICLE 19 SECURITY DEPOSIT

The provisions governing the return of bid deposits are clarified.

ARTICLE 20 PAYMENT GUARANTEE

The Payment Guaranty provisions, which apply when the City does not require the Contractor to obtain payment bonds, has been significantly revised to track the requirements of State Finance law 137.

ARTICLE 28 RECORDKEEPING FOR EXTRA OR DISPUTED WORK

The recordkeeping requirement that currently apply to payments for Time & Materials for extra work are expressly made applicable to regular work that is paid for on a T & M basis.

ARTICLE 35 EMPLOYEES

The whistleblower provisions of local law are added to the construction contract. They previously have been attached as a rider.

**ARTICLE 38 PAYROLL REPORTS
ARTICLE 77 RECORDS RETENTION**

Requirements that records be maintained for six years and directions on how such records must be made available.

ARTICLE 42 PARTIAL PAYMENTS

Increased flexibility has been provided for when contractors may submit invoices.

ARTICLE 62 TAX EXEMPTION

The provisions identifying the State tax exemption for municipalities are revised to more clearly describe State law.

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**NEW YORK CITY STANDARD CONSTRUCTION CONTRACT (DEC. 2013)
INSURANCE RIDER**

The following provisions supersede the corresponding provisions in the December 2013 version of the New York City Standard Construction Contract:

1. Section 22.1.1(c) provides as follows:

22.1.1(c) If the **Work** requires a permit from the Department of Buildings pursuant to 1 RCNY Section 101-08, the **Contractor** shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08 or greater limits provided by the Agency in Schedule A. If the Work does not require such a permit, the minimum limits shall be those provided for in Schedule A.

2. Section 22.3.3 provides as follows:

22.3.3 For policies provided pursuant to all of Article 22.1 other than Article 22.1.2, the **Contractor** shall submit one or more Certificates of Insurance on forms acceptable to the **Commissioner**. All such Certificates of Insurance shall certify (a) the issuance and effectiveness of such policies of insurance, each with the specified minimum limits (b) for insurance secured pursuant to Article 22.1.1 that the **City** and any other entity specified in Schedule A is an Additional Insured thereunder; (c) in the event insurance is required pursuant to Article 22.1.6 and/or Article 22.1.7, that the **City** is an Additional Insured thereunder; and (d) the company code issued to the insurance company by the National Association of Insurance Commissioners (the NAIC number). All such Certificates of Insurance shall be accompanied by the required additional insured endorsements and either a duly executed "Certification by Insurance Broker or Agent" in the form contained in Part III of Schedule A or copies of all policies referenced in such Certificate of Insurance as certified by an authorized representative of the issuing insurance carrier. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

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PAID SICK LEAVE LAW CONTRACT RIDER

Introduction and General Provisions

The Earned Sick Time Act, also known as the Paid Sick Leave Law ("PSLL"), requires covered employees who annually perform more than 80 hours of work in New York City to be provided with paid sick time.¹ Contractors of the City of New York or of other governmental entities may be required to provide sick time pursuant to the PSLL.

The PSLL became effective on April 1, 2014, and is codified at Title 20, Chapter 8, of the New York City Administrative Code. It is administered by the City's Department of Consumer Affairs ("DCA"); DCA's rules promulgated under the PSLL are codified at Chapter 7 of Title 6 of the Rules of the City of New York ("Rules").

Contractor agrees to comply in all respects with the PSLL and the Rules, and as amended, if applicable, in the performance of this agreement. Contractor further acknowledges that such compliance is a material term of this agreement and that failure to comply with the PSLL in performance of this agreement may result in its termination.

Contractor must notify the Agency Chief Contracting Officer of the City agency or other entity with whom it is contracting in writing within ten (10) days of receipt of a complaint (whether oral or written) regarding the PSLL involving the performance of this agreement. Additionally, Contractor must cooperate with DCA's education efforts and must comply with DCA's subpoenas and other document demands as set forth in the PSLL and Rules.

The PSLL is summarized below for the convenience of Contractor. Contractor is advised to review the PSLL and Rules in their entirety. On the website www.nyc.gov/PaidSickLeave there are links to the PSLL and the associated Rules as well as additional resources for employers, such as Frequently Asked Questions, timekeeping tools and model forms, and an event calendar of upcoming presentations and webinars at which Contractor can get more information about how to comply with the PSLL. Contractor acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

Pursuant to the PSLL and the Rules:

Applicability, Accrual, and Use

An employee who works within the City of New York for more than eighty hours in any consecutive 12-month period designated by the employer as its "calendar year" pursuant to the PSLL ("Year") must be provided sick time. Employers must provide a minimum of one hour of sick time for every 30 hours worked by an employee and compensation for such sick time must

¹ Pursuant to the PSLL, if fewer than five employees work for the same employer, as determined pursuant to New York City Administrative Code §20-912(g), such employer has the option of providing such employees uncompensated sick time.

be provided at the greater of the employee's regular hourly rate or the minimum wage. Employers are not required to provide more than forty hours of sick time to an employee in any Year.

An employee has the right to determine how much sick time he or she will use, provided that employers may set a reasonable minimum increment for the use of sick time not to exceed four hours per day. In addition, an employee may carry over up to forty hours of unused sick time to the following Year, provided that no employer is required to allow the use of more than forty hours of sick time in a Year or carry over unused paid sick time if the employee is paid for such unused sick time and the employer provides the employee with at least the legally required amount of paid sick time for such employee for the immediately subsequent Year on the first day of such Year.

An employee entitled to sick time pursuant to the PSLL may use sick time for any of the following:

- such employee's mental illness, physical illness, injury, or health condition or the care of such illness, injury, or condition or such employee's need for medical diagnosis or preventive medical care;
- such employee's care of a family member (an employee's child, spouse, domestic partner, parent, sibling, grandchild or grandparent, or the child or parent of an employee's spouse or domestic partner) who has a mental illness, physical illness, injury or health condition or who has a need for medical diagnosis or preventive medical care;
- closure of such employee's place of business by order of a public official due to a public health emergency; or
- such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency.

An employer must not require an employee, as a condition of taking sick time, to search for a replacement. However, an employer may require an employee to provide: reasonable notice of the need to use sick time; reasonable documentation that the use of sick time was needed for a reason above if for an absence of more than three consecutive work days; and/or written confirmation that an employee used sick time pursuant to the PSLL. However, an employer may not require documentation specifying the nature of a medical condition or otherwise require disclosure of the details of a medical condition as a condition of providing sick time and health information obtained solely due to an employee's use of sick time pursuant to the PSLL must be treated by the employer as confidential.

If an employer chooses to impose any permissible discretionary requirement as a condition of using sick time, it must provide to all employees a written policy containing those requirements, using a delivery method that reasonably ensures that employees receive the policy. If such employer has not provided its written policy, it may not deny sick time to an employee because of non-compliance with such a policy.

Sick time to which an employee is entitled must be paid no later than the payday for the next regular payroll period beginning after the sick time was used.

Exemptions and Exceptions

Notwithstanding the above, the PSSL does not apply to any of the following:

- an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;
- an employee covered by a valid collective bargaining agreement in effect on April 1, 2014 until the termination of such agreement;
- an employee in the construction or grocery industry covered by a valid collective bargaining agreement if the provisions of the PSSL are expressly waived in such collective bargaining agreement;
- an employee covered by another valid collective bargaining agreement if such provisions are expressly waived in such agreement and such agreement provides a benefit comparable to that provided by the PSSL for such employee;
- an audiologist, occupational therapist, physical therapist, or speech language pathologist who is licensed by the New York State Department of Education and who calls in for work assignments at will, determines his or her own schedule, has the ability to reject or accept any assignment referred to him or her, and is paid an average hourly wage that is at least four times the federal minimum wage;
- an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;
- an employee whose work is compensated by a qualified scholarship program as that term is defined in the Internal Revenue Code, Section 117 of Chapter 20 of the United States Code; or
- a participant in a Work Experience Program (WEP) under section 336-c of the New York State Social Services Law.

Retaliation Prohibited

An employer may not threaten or engage in retaliation against an employee for exercising or attempting in good faith to exercise any right provided by the PSSL. In addition, an employer may not interfere with any investigation, proceeding, or hearing pursuant to the PSSL.

Notice of Rights

An employer must provide its employees with written notice of their rights pursuant to the PSSL. Such notice must be in English and the primary language spoken by an employee, provided that DCA has made available a translation into such language. Downloadable notices are available on DCA's website at <http://www.nyc.gov/html/dca/html/law/PaidSickLeave.shtml>.

Any person or entity that willfully violates these notice requirements is subject to a civil penalty in an amount not to exceed fifty dollars for each employee who was not given appropriate notice.

Records

An employer must retain records documenting its compliance with the PSSL for a period of at least three years, and must allow DCA to access such records in furtherance of an investigation related to an alleged violation of the PSSL.

Enforcement and Penalties

Upon receiving a complaint alleging a violation of the PSSL, DCA has the right to investigate such complaint and attempt to resolve it through mediation. Within 30 days of written notification of a complaint by DCA, or sooner in certain circumstances, the employer must provide DCA with a written response and such other information as DCA may request. If DCA believes that a violation of the PSSL has occurred, it has the right to issue a notice of violation to the employer.

DCA has the power to grant an employee or former employee all appropriate relief as set forth in New York City Administrative Code 20-924(d). Such relief may include, among other remedies, treble damages for the wages that should have been paid, damages for unlawful retaliation, and damages and reinstatement for unlawful discharge. In addition, DCA may impose on an employer found to have violated the PSSL civil penalties not to exceed \$500 for a first violation, \$750 for a second violation within two years of the first violation, and \$1,000 for each succeeding violation within two years of the previous violation.

More Generous Policies and Other Legal Requirements

Nothing in the PSSL is intended to discourage, prohibit, diminish, or impair the adoption or retention of a more generous sick time policy, or the obligation of an employer to comply with any contract, collective bargaining agreement, employment benefit plan or other agreement providing more generous sick time. The PSSL provides minimum requirements pertaining to sick time and does not preempt, limit or otherwise affect the applicability of any other law, regulation, rule, requirement, policy or standard that provides for greater accrual or use by employees of sick leave or time, whether paid or unpaid, or that extends other protections to employees. The PSSL may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

HIRING AND EMPLOYMENT RIDER:
HIRENYC AND REPORTING REQUIREMENTS

Introduction

This Rider shall apply to all contracts for goods, services, and construction with a value of one million dollars (\$1,000,000.00) or more, provided, however, that certain requirements of the Rider shall only apply as indicated below. This Rider addresses the HireNYC process, including reporting obligations under the HireNYC process, and certain other reporting requirements imposed by law. In general, the HireNYC process under this Rider requires the Contractor to enroll with the HireNYC portal for the City of New York ("the City") found within the Department of Small Business Services's ("SBS") website, to disclose all entry to mid-level job opportunities described in this Rider arising from this contract and located in New York City, and to agree to interview qualified candidates from HireNYC for those opportunities.

HireNYC Requirements

A. Enrollment

The Contractor shall enroll with the HireNYC system, found at www.nyc.gov/sbs, within thirty (30) days after the registration of this Contract pursuant to Section 328 of the New York City Charter. The Contractor shall provide information about the business, designate a primary contact and say whether it intends to hire for any entry to mid-level job opportunities arising from this contract and located in New York City, and, if so, the approximate start date of the first hire.

B. Job Posting Requirements

Once enrolled in HireNYC, the Contractor agrees to update the HireNYC portal with all entry to mid-level job opportunities arising from this contract and located in New York City, if any, which shall be defined as jobs requiring no more than an associate degree, as provided by the New York State Department of Labor (see Column F of <https://labor.ny.gov/stats/2012-2022-NYS-Employment-Prospects.xls>). The information to be updated includes the types of entry and mid-level positions made available from the work arising from the contract and located in New York City, the number of positions, the anticipated schedule of initiating the hiring process for these positions, and the contact information for the Contractor's representative charged with overseeing hiring. The Contractor must update the HireNYC portal with any hiring needs arising from the contract and located in New York City, and the requirements of the jobs to be filled, no less than three weeks prior to the intended first day of employment for each new position, except with the permission of SBS, not to be unreasonably withheld, and must also update the HireNYC portal as set forth below.

After enrollment through HireNYC and submission of relevant information, SBS will work with the Contractor to develop a recruitment plan which will outline the candidate screening process,

and will provide clear instructions as to when, where, and how interviews will take place. HireNYC will screen applicants based on employer requirements and refer applicants whom it believes are qualified to the Contractor for interviews. The Contractor must interview referred applicants whom it believes are qualified.

After completing an interview of a candidate referred by HireNYC, the Contractor must provide feedback via the portal within twenty (20) business days to indicate which candidates were interviewed and hired, if any. In addition, the Contractor shall provide the start date of new hires, and additional information reasonably related to such hires, within twenty (20) business days after the start date. In the event the Contractor does not have any job openings covered by this Rider in any given year, the Contractor shall be required to provide an annual update to HireNYC to that effect. For this purpose, the reporting year shall run from the date of the registration of the contract and each anniversary date.

These requirements do not limit the Contractor's ability to assess the qualifications of prospective workers, and to make final hiring and retention decisions. No provision of this Rider shall be interpreted so as to require the Contractor to employ any particular worker.

In addition, the provisions of this Rider shall not apply to positions that the Contractor intends to fill with employees employed pursuant to the job retention provision of Section 22-505 of the Administrative Code of the City of New York. The Contractor shall not be required to report such openings with HireNYC. However, the Contractor shall enroll with the HireNYC system pursuant to Section A, above, and, if such positions subsequently become open, then the remaining provisions of this Rider will apply.

C. Breach and Liquidated Damages

If the Contractor fails to comply with the terms of the contract and this Rider (1) by not enrolling its business with HireNYC; (2) by not informing HireNYC, as required, of open positions; or (3) by failing to interview a qualified candidate, the contracting agency may assess liquidated damages in the amount of two-thousand five hundred dollars (\$2,500.00) per breach. For all other events of noncompliance with the terms of this Rider, the agency may assess liquidated damages in the amount of five hundred dollars (\$500) per breach.

Furthermore, in the event the Contractor breaches the requirements of this Rider during the term of the contract, the City may hold the Contractor in default of this contract.

Audit Compliance

In addition to the auditing requirements set forth in other parts of the contract, the Contractor shall permit SBS and the City to inspect any and all records concerning or relating to job openings or the hiring of individuals for work arising from the contract and located in New York City. The Contractor shall permit an inspection within seven (7) business days of the request.

Other Reporting Requirements

The Contractor shall report to the City, on a monthly basis, all information reasonably requested by the City that is necessary for the City to comply with any reporting requirements imposed by law or rule, including any requirement that the City maintain a publicly accessible database. In addition, the Contractor agrees to comply with all reporting requirements imposed by law or rule, or as otherwise requested by the City.

Construction Requirements

Construction contractors shall comply with the HireNYC requirements set forth above for all non-trades jobs (e.g., for an administrative position arising out of the work of the contract and located in New York City) as set forth above.

In addition, construction contractors shall reasonably cooperate with SBS and the City on specific outreach events, including Hire on the Spot events, for the hiring of trades workers for the work of this contract.

Further, this contract shall be subject to a project labor agreement if so required elsewhere in this contract.

Federal Hiring Requirements

The Contractor shall comply with all federal hiring requirements as may be set forth elsewhere in this contract, including, as applicable:

- Section 3 of the HUD Act of 1968, which requires, to the greatest extent feasible, economic opportunities for 30 percent of new hires be given to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- Executive Order 11246, which prohibits discrimination in employment due to race, color, religion, sex or national origin, and requires the implementation of goals for minority and female participation for work involving any Construction trade.

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

INFORMATION FOR BIDDERS

December 2013

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INFORMATION FOR BIDDERS

1. Description and Location of Work

The description and location of the work for which bids are requested are specified in Attachment 1, "Bid Information". Attachment 1 is included in the Bid Booklet.

2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in Attachment 1, at which time they will be publicly opened and read aloud in the presence of the Commissioner or his or her representative, and any bidders who may desire to be present.

3. Definitions

The definitions set forth in the Procurement Policy Board Rules shall apply to this Invitation For Bids.

4. Invitation For Bids and Contract Documents

(A) Except for titles, sub-titles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience) the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of the Contract and the Invitation for Bids.

- (1) All provisions required by law to be inserted in this Contract, whether actually inserted or not
- (2) The Contract Drawings and Specifications
- (3) The General Conditions, the General Requirements and the Special Conditions, if any
- (4) The Contract
- (5) The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet
- (6) The Budget Director's Certificate; all Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed with the Work.

(B) For particulars as to this procurement, including quantity and quality of the purchase, extent of the work or labor to be performed, delivery and performance schedule, and any other special instructions, prospective bidders are referred to the Invitation For Bids Documents. A copy of such documents can be obtained at the location set forth in Attachment 1.

(C) Deposit for Copy of Invitation For Bids Documents: Prospective bidders may obtain a copy of the Invitation For Bids Documents by complying with the conditions set forth in the Notice of Solicitation. The deposit must be in the form of a check or money order made payable to the City of New York, and drawn upon a state or national bank or trust company, or a check of such bank or trust company signed by a duly authorized officer thereof.

(D) Return of Invitation For Bids Documents: All Invitation For Bids Documents must be returned to the Department upon request. If the bidder elects not to submit a bid thereunder, the Invitation For Bids Documents shall be returned to the Department, along with a statement that no bid will be submitted.

(E) Return of Deposit: Such deposit will be returned within 30 days after the award of the contract or the rejection of all bids as set forth in the advertisement, provided the Invitation For Bids Documents are returned to the location specified in Attachment 1, in physical condition satisfactory to the Commissioner.

(F) Additional Copies: Additional copies of the Invitation For Bids Documents may be obtained, subject to the conditions set forth in the advertisement for bids.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in Attachment 1. Nothing stated at the pre-bid conference shall change the terms or conditions of the Invitation For Bids Documents, unless a change is made by written amendment as provided in Section 9 below. Failure to attend a mandatory pre-bid conference shall constitute grounds for the rejection of the bid.

6. Agency Contact

Any questions or correspondence relating to this bid solicitation shall be addressed to the Agency Contact person specified in Attachment 1.

7. Bidder's Oath

(A) The bid shall be properly signed by an authorized representative of the bidder and the bid shall be verified by the written oath of the authorized representative who signed the bid, that the several matters stated and information furnished therein are in all aspects true.

(B) A materially false statement willfully or fraudulently made in connection with the bid or any of the forms completed and submitted with the bid may result in the termination of any Contract between the City and the Bidder. As a result, the Bidder may be barred from participating in future City contracts as well as be subject to possible criminal prosecution.

8. Examination and Viewing of Site, Consideration of Other Sources of Information and Changed Conditions

(A) Pre-Bidding (Investigation) Viewing of Site - Bidders must carefully view and examine the site of the proposed work, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions on, about or above the site relating to or affecting in any way the performance of the work to be done under the Contract which were or should have been indicated to a reasonably prudent bidder. To arrange a date for visiting the work site, bidders are to contact the Agency Contact person specified in Attachment 1.

(B) Should the contractor encounter during the progress of the work subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications or such subsurface conditions as could not reasonably have been anticipated by the contractor and were not anticipated by the City, which conditions will materially affect the cost of the work to be done under the Contract, the attention of the Commissioner must be called immediately to such conditions before they are disturbed. The Commissioner shall thereupon promptly investigate the conditions. If he finds that they do so materially differ, or that they could not reasonably have been anticipated by the contractor and were not anticipated by the City, the Contract may be modified with his written approval.

9. Examination of Proposed Contract

(A) Request for Interpretation or Correction: Prospective bidders must examine the Contract Documents carefully and before bidding must request the Commissioner in writing for an interpretation or correction of every patent ambiguity, inconsistency or error therein which should have been discovered by a reasonably prudent bidder. Such interpretation or correction, as well as any additional contract provisions the Commissioner may decide to include, will be issued in writing by the Commissioner as an addendum to the Contract, which will be transmitted to each person recorded as having received a copy of the Contract Documents from the Department. Transmission of such addendum will be by mail, e-mail, facsimile or hand delivery. Such addendum will also be posted at the place where the Contract Documents are available for the inspection of prospective bidders. Upon transmission as provided for herein, such addendum shall become a part of the Contract Documents, and binding on all bidders, whether or not actual notice of such addendum is shown.

(B) Only Commissioner's Interpretation or Correction Binding: Only the written interpretation or correction so given by the Commissioner shall be binding, and prospective bidders are warned that no other officer, agent or employee of the City is authorized to give information concerning, or to explain or interpret, the Contract.

(C) Documents given to a subcontractor for the purpose of soliciting the subcontractor's bid shall include either a copy of the bid cover sheet or a separate information sheet setting forth the project name, the Contract number (if available), the contracting agency and the Project's location.

10. Form of Bid

Each bid must be submitted upon the prescribed form and must contain: a) the name, residence and place of business of the person or persons making the same; b) the names of all persons interested therein, and if no other person is so interested, such fact must be distinctly stated; c) a statement to the effect that it is made without any connection with any other person making a bid for the same purpose and that it is in all respects fair and without collusion or fraud; d) a statement that no Council member or other officer or employee or person whose salary is payable in whole or part from the City Treasury is directly or indirectly interested therein or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof; e) a statement that the bidder is not in arrears to the City or to any agency upon a debt or contract or taxes, and is not a defaulter as surety or otherwise upon any obligation to the City to any agency thereof, except as set forth in the bid.

THE BID SHALL BE TYPEWRITTEN OR WRITTEN LEGIBLY IN INK. THE BID SHALL BE SIGNED IN INK. ERASURES OR ALTERATIONS SHALL BE INITIALED BY THE SIGNER IN INK. FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS SECTION 10 SHALL RESULT IN THE REJECTION OF THE BID.

11. Irrevocability of Bid

The prices set forth in the bid cannot be revoked and shall be effective until the award of the Contract, unless the bid is withdrawn as provided for in Sections 15 and 18 below.

12. Acknowledgment of Amendments

The receipt of any amendment to the Contract Documents shall be acknowledged by the bidder in its bid submission.

13. Bid Samples and Descriptive Literature

Bid samples and descriptive literature shall not be submitted by the bidder, unless expressly requested elsewhere in the Contract or Contract Documents. Any unsolicited bid samples or descriptive literature which are submitted shall not be examined or tested and shall not be deemed to vary any of the provisions of this Contract.

14. Proprietary Information/Trade Secrets

(A) The bidder shall identify those portions of the bid which it deems to be confidential, proprietary information or trade secrets, and provide justification why such materials shall not be disclosed by the City. All such materials shall be clearly indicated by stamping the pages on which such information appears, at the top and bottom thereof with the word "Confidential". Such materials stamped "Confidential" must be easily separable from the non-confidential sections of the bid.

(B) All such materials so indicated shall be reviewed by the Agency and any decision not to honor a request for confidentiality shall be communicated in writing to the bidder. For those bids which are unsuccessful, all such confidential materials shall be returned to the bidder. Prices, makes and model or catalog numbers of the items offered, deliveries, and terms of payment shall be publicly available after bid opening, regardless of any designation of confidentiality made by the bidder.

15. Pre-Opening Modification or Withdrawal of Bids

Bids may be modified or withdrawn by written notice received in the office designated in Attachment 1, before the time and date set for the bid opening. If a bid is withdrawn in accordance with this Section, the bid security, if any, shall be returned to the bidder.

16. Bid Evaluation and Award

In accordance with the New York City Charter, the Procurement Policy Board Rules and the terms and conditions of this Invitation For Bids, this Contract shall be awarded, if at all, to the responsible bidder whose bid meets the requirements and evaluation criteria set forth in the Invitation For Bids, and whose bid price is either the most favorable bid price or, if the Invitation For Bids so states, the most favorable evaluated bid price. A bid may not be evaluated for any requirement or criterion that is not disclosed in the Invitation For Bids.

Restriction: No negotiations with any bidder shall be allowed to take place except under the circumstances and in the manner set forth in Section 21. Nothing in this Section shall be deemed to permit a contract award to a bidder submitting a higher quality item than that designated in the Invitation For Bids, if that bid is not also the most favorable bid.

17. Late Bids, Late Withdrawals and Late Modifications

Any bid received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. Any request for withdrawal or modification received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. The exception to this provision is that a late modification of a successful bid that makes the bid terms more favorable to the City shall be considered at any time it is received.

18. Withdrawal of Bids.

Except as provided for in Section 15, above, a bidder may not withdraw its bid before the expiration of forty-five (45) days after the date of the opening of bids; thereafter, a bidder may withdraw its bid only in writing and in advance of an actual award. If within sixty (60) days after the execution of the Contract, the Commissioner fails to fix the date for commencement of work by written notice to the bidder, the bidder, at his option, may ask to be relieved of his obligation to perform the work called for by written notice to the Commissioner. If such notice is given to the Commissioner, and the request to withdraw is granted, the bidder waives all claims in connection with this Contract.

19. Mistake in Bids

(A) Mistake Discovered Before Bid Opening: A bidder may correct mistakes discovered before the time and date set for bid opening by withdrawing or correcting the bid as provided in Section 15 above.

(B) Mistakes Discovered Before Award

(1) In accordance with General Municipal Law (Section 103, subdivision 11), where a unilateral error or mistake is discovered in a bid, such bid may be withdrawn upon written approval of the Agency Chief Contracting Officer if the following conditions are met:

- (a) The mistake is known or made known to the agency prior to the awarding of the Contract or within 3 days after the opening of the bid, whichever period is shorter; and
- (b) The price bid was based upon an error of such magnitude that enforcement would be unconscionable; and

- (c) The bid was submitted in good faith and the bidder submits credible evidence that the mistake was a clerical error as opposed to a judgment error; and
- (d) The error in the bid is actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, material or services made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and
- (e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

- (1) Award to a certified New York City small, minority or woman-owned business entity bidder;
- (2) Award to a New York City bidder;
- (3) Award to a certified New York State small, minority or woman-owned business bidder;
- (4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

- (1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
- (2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
- (3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
- (4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

- (1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or
- (2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract without issuing a new solicitation, subject to the following conditions:

- (1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;
- (2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and
- (3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. VENDEX Questionnaires

(A) Requirement: Pursuant to Administrative Code Section 6-116.2 and the PPB Rules, bidders may be obligated to complete and submit VENDEX Questionnaires. Generally, if this bid is \$100,000 or more, or if this bid when added to the sum total of all contracts, concessions and franchises the bidder has received from the City and any subcontracts received from City contractors over the past twelve months, equals or exceeds \$100,000, Vendex Questionnaires must be completed. If required, Vendex Questionnaires must be completed and submitted before any award of contract may be made or before approval is given for a proposed subcontractor. Non-compliance with these submission requirements may result in the disqualification of the bid, disapproval of a subcontractor, subsequent withdrawal of approval for the use of an approved subcontractor, or the cancellation of the contract after its award.

(B) Submission: Vendex Questionnaires must be submitted directly to the Mayor's Office of Contract Services, ATTN: Vendex, 253 Broadway, 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 it meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth on page 2 of the Bid Booklet.

39. Comptroller's Certificate

This Contract shall not be binding or of any force unless it is registered by the Comptroller in accordance with Section 328 of the City Charter and the Procurement Policy Board Rules. This Contract shall continue in force only after annual appropriation of funds by the City of New York and certification as hereinabove set forth.

40. Procurement Policy Board Rules

This Invitation For Bids is subject to the Rules of the Procurement Policy Board of the City of New York. In the event of a conflict between said Rules and a provision of this Invitation For Bids, the Rules shall take precedence.

41. DDC Safety Requirements

The DDC Safety Requirements apply to the work to be performed pursuant to the Contract. The DDC Safety Requirements are set forth on the following pages.

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
SAFETY REQUIREMENTS

June 2015

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); 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 16 NYCRR Part 753
- Title 15 of the Rules of the City of New York, Chapter 13 Citywide Construction Dust Mitigation
- Manual on Uniform Traffic Control Devices (MUTCD)
- Title 15 of the Rules of the City of New York, Chapter 28 Citywide Construction Noise Mitigation

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 QA&CS 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 QA&CS within the Division of Program Management/ Safety & Site 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").

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Daily Safety Job Briefing: Daily jobsite safety meetings, giving to all jobsite personnel by contractor, with the purpose of discussing project specific safety procedures for the scheduled construction work.

Director - Quality Assurance and Construction Safety (QA&CS): Responsible for the operations of the QACS Construction Safety Unit and the DDC Site Safety management programs.

Job Hazard Analysis (JHA): A process of identifying the major job steps and any potential site-specific hazards that may be present during construction and establishing the means and methods to eliminate or control those hazards.

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.

Project Site: Those areas indicated in the Contract Documents where the Work is to be performed.

Project Safety Representative: The designated project safety representative shall have completed an authorized 30 hour OSHA Construction Safety Course and other safety training applicable to Contractor's/subcontractor's project work. Except in instances where a dedicated Project Safety Manager is required, a Project Safety Representative may also function as a superintendent, foreman or crew leader on the Project, but must have sufficient experience and authority to undertake corrective actions and must qualify to be a competent person. No work is to be performed on site when a Project Safety Representative is not present.

Project Safety Manager: A dedicated, full-time project safety manager may be a contractual requirement on large projects or projects deemed by DDC to be particularly high risk. This would be in addition or in lieu of a Contractor's Project Safety Representative. This individual shall not have any other assigned duties. This individual shall have received, at a minimum an authorized 30 hour OSHA Construction Safety Course. Other examples of acceptable training are OSHA Safety and Health Standards for the Construction Industry training program (OSHA 510), Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH) or a degree/certificate in a safety and health from a college-level curriculum.

A Project Safety Manager shall possess the additional training, years of experience, and skills necessary to thoroughly understand the health and safety hazards and controls for large construction projects, including the full scope of the specific Work.

QA&CS - Quality Assurance and Construction Safety of the New York City Department of Design and Construction.

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 Construction Management firm, 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 Manager: For certain projects, as defined in NYC Construction Codes - Title 28, the Contractor shall provide a Site Safety Manager with a Site Safety Manager License issued by the NYC Department of Building.

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 procedures and training appropriate and

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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.

Work: The construction required by the Contract Documents whether completed or partially completed, performed by the Contractor/ subcontractors. Work refers to the furnishing of labor, furnishing and incorporating materials and equipment into the construction and providing any service required by the Contract Documents to fulfill the Contractor's obligation to complete the Project.

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. DDC or CM Resident Engineer / Construction Project 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 meetings and daily safety job briefings.
- 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 and Accident Notification and Response Protocol.
- Gathers facts related to all accidents and prepares DDC Construction Accident Report.
- Notifies the Construction Safety Unit within two (2) hours of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB or others and forwards a copy of the inspection report within three days of its receipt.
- Monitors the conditions at the site for conformance with the contractor's 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 contractor's 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 unsafe or unhealthy condition and directs the contractor to provide such labor, materials, equipment and supervision to abate such conditions.
- Escort and assist QA&CS Construction Safety Auditors during the field and record inspections.
- Reports emergency conditions to the Construction Safety Unit immediately.

B. Contractors

- Submit a completed Safety Questionnaire and other safety performance related documentation with its bid or as part of a pre-qualification package.
- Complete a written Job Hazard Analysis (JHA) that identifies safety hazards for project specific work tasks and hazard control methods. A written JHA shall be available at the site for reference and included in the Site Safety Plan submitted by the contractor.
- Submit a Site Safety Plan and Safety Program within 30 days from the Award Date 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.

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- Develop project specific safety procedures to protect general public during all construction activities for the duration of the project.
- Ensure that all employees are aware of the hazards associated with the project through documented formal and informal training and/or other communications. Conduct and document weekly safety meetings and daily job briefing sessions for the duration of the project. Documentation to be provided to the RE/CPM on a monthly basis.
- Name the Project Safety Representative and Project Safety Manager, if required. The Contractor will be required to identify the Project Safety Representative and Project Safety Manager in the Site Safety Plan. Resumes, outlining the qualification and experience for the Project Safety Representative and Project Safety Manager, shall be available upon request. DDC reserves the right to request that the Contractor replace any Project Safety Representative or Project Safety Manager for any reason at any time during the project.
- Name a Competent Person(s), The Contractor will be required to identify a Competent Person(s) 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.
- Conduct applicable safety training prior to the commencement of work at the site. All training records (OSHA 10-hour, flagger, scaffold, fall protection, confined space entry, etc.) shall be provided to the RE/CPM prior to mobilization, included in the Site Safety Plan, kept current during the course of the project, and available for review. Prior to performing any work on DDC project all employees shall have successfully completed, within the previous five calendar years, a 10 Hour OSHA construction safety course.
- As part of the Site Safety Plan, prepare a site specific programs and plans, such as MPT plan, steel erection plan, confined space program, fall protection plan, demolition plan, etc. (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 Project Safety Representative and/or Project Safety Manager will conduct this training prior to mobilization and provide documentation to the RE/CPM.
- 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 or unhealthy conditions to the RE/CPM as soon as practical, but no more than 24 hours after discovery, and take prompt actions to remove or abate such conditions.
- Report any accidents involving injuries to workers or the general public, as well as property damage, to the RE/CPM within one (1) hour.
- Following an accident, the Contractor shall not remove or alter any equipment, structure, material, or evidence related to the accident. Exception: Immediate emergency procedures taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger or facilitate assistance for persons who are trapped or who have sustained bodily injury.
- Notify the RE/CPM within one (1) hour of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB or others.
- Maintain all records pertaining to all required compliance documents and accident and injury reports.
- Address 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 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 company workers' compensation experience modification rating and OSHA Incident 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 information within 15 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:

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- 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 (3) years; and
- Criteria 4: A fatality (worker or member of public) and injuries, requiring OSHA notification, experienced on or near Contractor's worksite within the last three (3) years; and
- Criteria 5: Past safety performance on DDC projects (accidents; status of safety program and site safety plan submittals; etc.)
- Criteria 6: OSHA violation history for the last three (3) years;
- Criteria 7: Contractor shall provide OSHA Injury and Illness Records (currently OSHA 300 and 300A Logs) 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 details concerning the Contractor's safety experience. DDC may request the Contractor to provide copies of, among other things, accident investigation reports, OSHA records, OSHA and NYC DOB citations, EPA citations and written corrective action plan.

VI. SAFETY PROGRAM AND SITE SAFETY PLAN

Within thirty (30) days from the Award Date, 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 standards. The Site Safety Plan shall identify project work scope, safety hazards associated with the project tasks, and include specific safety procedures 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.

Safety Program: Corporate Safety Program established by the Contractor that includes the Contractor's overall safety policy, regulatory compliance plan and basic safety procedures covering all aspects of construction operations, performed by the Contractor. The Safety Program shall be a written document with a separate section describing each element of the Safety Program. The Safety Program shall have at minimum the following elements applicable to the Contractor's operations:

- Responsibility and Organization – Contractor's company organization chart, including titles, names, contact information, roles and responsibilities for key personnel, etc.
- Safety Training Program – Contractor's corporate training program.
- Hazard Corrective Actions – Criteria for safety inspections, identification of safety non-compliances, implementation and verification of corrective actions, forms to document safety inspections results, etc.
- Accident/Exposure Investigation
- Recordkeeping and Reporting Injuries – Responsible staff; reporting and recording criteria; OSHA 300 and 300A form completion, etc.
- Fire Protection and Prevention Program
- Housekeeping
- Illumination
- Sanitation
- Personal Protective Equipment (PPE) – Company policy for the use of head protection, foot protection, hearing protection, eye and face protection, protective clothing, and any additional protective equipment based on work tasks; PPE inspection and replacement policy.
- Hazard Communication Program
- Employee Emergency Action Plan
- Protection of Underground Facilities and Utilities
- Ionizing/Nonionizing Radiation
- Material Handling, Storage, Use and Disposal
- Tools – Hand and Power
- Signs, Signals, and Barricades

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- Scaffold – Local Law 52 requirements, installation, use, inspection, dismantling, training and general safety requirements.
- Welding and Cutting
- Electrical Safety
- Fall Protection
- Cranes, Derrick, Hoists, Elevators, Conveyors
- Excavation Safety
- Concrete and Masonry Construction
- Maintenance and Protection of Traffic
- Steel Erection
- Demolition
- Blasting and the Use of Explosives
- Stairways and Ladders
- Toxic and Hazardous Substances
- Alcohol and Drug Abuse Policy
- Rodents and Vermin
- Occupational Noise Exposure
- Confined Space Program – General confined Space Program: training requirements, confined space hazard evaluation procedure, atmospheric testing procedure, confined space classification, permit-required procedure, communication procedure, rescue procedure, forms, etc.
- Construction Vehicles/Heavy Equipment
- Dust Control Procedures

Site Safety Plan: The Site Safety Plan shall be a written document and shall apply to all project specific Contractor and subcontractor operations, and shall have at a minimum, the following elements with each element described in a separate section (It may be necessary to modify the basic format for certain unique or high-risk projects, such as tunnels or high-rise construction):

- Project Work Scope – Detailed information regarding work tasks that will be performed by contractor and subcontractors under the project.
- Responsibility and Organization – Contractor's organization chart with responsible staff for the project, including titles, names, contact information, roles and responsibilities.
- Safety Training and Education – OSHA 10 Hours training, requirements for daily safety briefings and weekly safety meetings, any work task specific training, responsible staff for implementation of training program for the project.
- Job Hazard Analysis (JHA) – Project specific Job Hazard Analysis including work tasks, identified hazards, hazard control methods (administrative, engineering, PPE), contractor's name, project id, location, name and signature of a certifying person, hazard assessment date.
- Protection of Public
- Hazard Corrective Actions – Responsible staff, forms, frequency of safety inspections and implementation of corrective actions.
- Accident/Exposure Investigation – Accident/incident notification procedure of DDC project staff. Project specific procedures for accident investigation and implementation of corrective actions.
- First Aid and Medical Attention – Responsible staff, location and inspection of First Aid kit, directions to local hospitals; emergency telephone numbers.
- Project Specific Fire Protection and Prevention Program.
- Project Specific Illumination Procedure.
- Project Specific Sanitation Procedure.
- Personal Protective Equipment (PPE)
- Hazard Communication Program – Responsible staff; training; SDS records, project specific list of chemical; location of the program and SDS records.
- Means of Egress – Information regarding free and unobstructed egress from all parts of the building or structure; exit marking; maintenance of means of egress, etc.
- Employee Emergency Action Plan – Project specific: responsible staff, emergency alarm system, evacuation procedure, procedure to account for employees after evacuation, etc.
- Evacuation Plan – Project specific evacuation plan (drawing/scheme) with exists and evacuation routes.

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- Protection of Underground Facilities and Utilities, including responsible staff.
- Ionizing/Nonionizing Radiation – Competent person, license and qualification requirements, type of radiation, employees exposure and protection, etc.
- Material Handling, Storage, Use and Disposal – Project specific information regarding material storage and disposal.
- Signs, Signals, and Barricades – Use of danger/warning signs, sidewalk closure, safety instruction signs, pedestrian fencing and barricades, etc.
- Scaffold – Project specific scaffold types, training, scaffold drawings, competent person, criteria for project specific scaffold, falling object protection.
- Welding and Cutting – project specific procedure for welding and cutting, including all necessary safety requirements such as fire prevention, personal protective equipment, hot work permits, FDNY certificate requirements.
- Fall Protection – Project specific information regarding selected fall protection systems, fall protection plan.
- Cranes, Derrick, Hoists, Elevators, Conveyors – project specific equipment information including type, rated load capacity, manufacture specification requirements, competent person, exposure to falling load, inspection, recordkeeping, clearance requirements, communication procedure, ground lines, permits.
- Excavation Safety – Competent person, project specific protective system.
- Maintenance and Protection of Traffic Plan – Project specific MPT plan, flagmen training.
- Steel Erection – Site specific erection plan, requirements for applicable written notifications, competent person.
- Demolition – Engineering survey, including written evidence, disconnection of all effected utilities, identification of all hazardous chemicals, materials, gases, etc., floor openings, chutes, inspection and maintenance of all stairs/passageways, removal of materials/debris/structural elements, lock out/tag out, competent person.
- Blasting and the Use of Explosives – Project specific safety procedures, warning signs, training/qualification, transportation, storage and use of explosives, inspection.
- Toxic and Hazardous Substances – Safety procedures for substances to be used on project.
- Noise Mitigation Plan – Completed project specific Noise Mitigation Plan.
- Confined Space Program – Project specific Confined Space Program, responsible staff, training records, equipment information, rescue procedure, list of project specific confined spaces, forms.
- Construction Vehicles/Heavy Equipment – Type of construction vehicles/heavy equipment to be used on site.
- Dust Mitigation Plan – Completed project specific Dust Mitigation Plan.

The most critical component of the Site Safety Plan is the Job Hazard Analysis (JHA) section. The JHA form is a written document prepared by the contractor. The contractor must conduct a site and task assessment JHA to identify the major job steps and any potential safety or environmental hazards related to performance of the work, eliminate or implement controls for the potential hazards, and identify proper personal protective equipment for the task. The JHA shall be communicated to all contractor/subcontractor personnel on site.

The initial Job Hazard Assessment form shall be included in the contractor's Site Safety Plan and the current form shall be available at the construction site for reference.

Certain DDC programs, such as Job Order Contracting System (JOCS), may not necessarily require Site Safety Plans. The JOCS contractor shall submit a Safety Program. The Site Safety Plan requirement for the JOCS contractor will be determined by QA&CS based on a project work scope, construction activities and project location. In addition, certain DDC Operating Units may establish client-specific program or safety requirements. The contractor's Site Safety Plan must address such client-specific program or safety requirements.

VII. KICK-OFF MEETINGS/PRE-CONSTRUCTION AND SAFETY REVIEW

RE/CPM shall invite QA&CS Construction Safety Unit to the construction kick-off meeting. A QA&CS representative will participate in this meeting with the Contractor and RE/CPM prior to the start of the project for the purpose of:

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- 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 QA&CS 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:

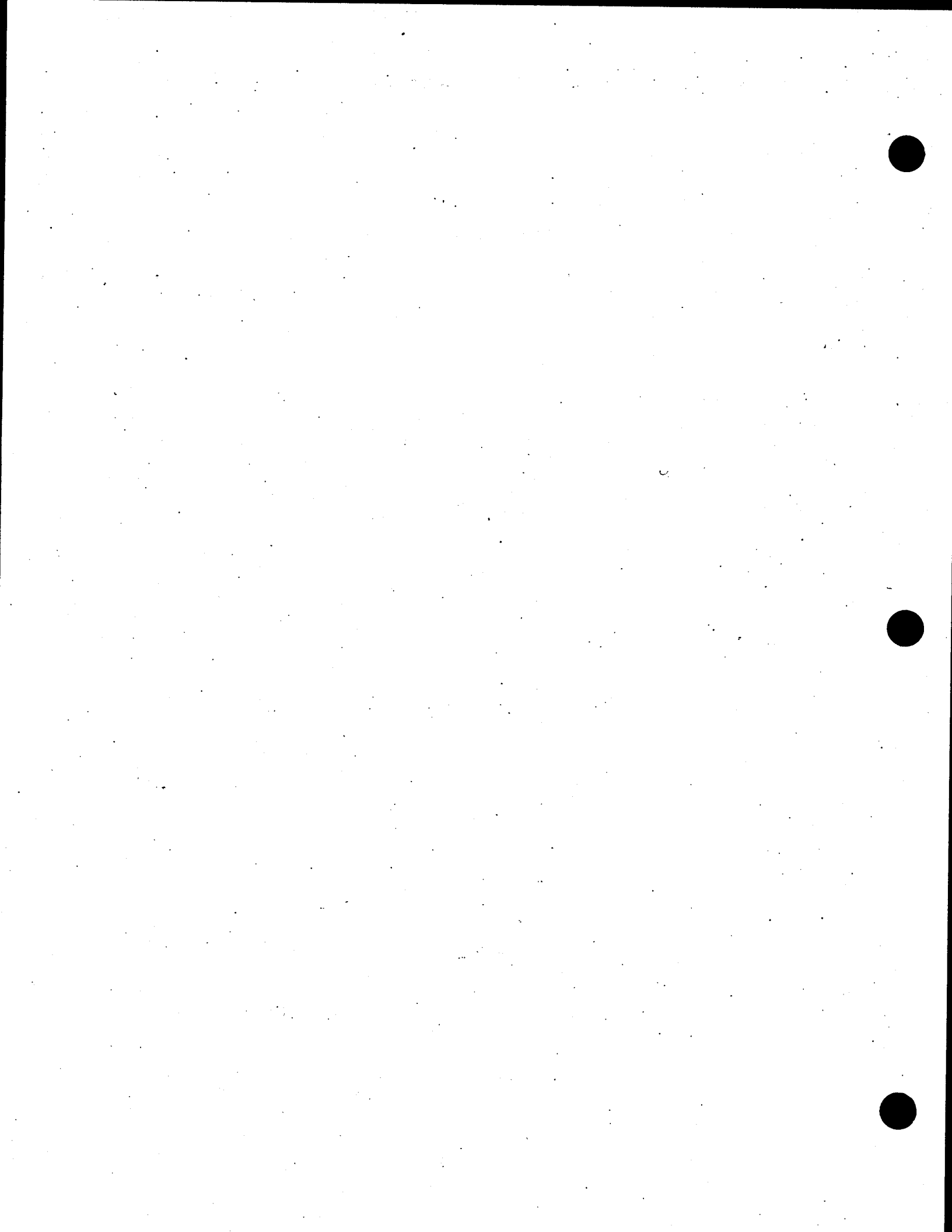
- A. Use of a safety checklist by a representative of the Construction Safety Unit or other designated DDC representative or Consultant during regular, unannounced inspections of the job site. Field Exit Conferences will be held with the RE/CPM, Contractor Project Safety Representatives.
- B. The RE/CPM 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 have these records available upon request. Any critical deficiencies shall be immediately reported to QA&CS 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 - QA&CS, or his/her designee will meet with the Contractor's Project Safety Representative and or Project Safety Manager, the DDC Project Manager, the RE/CPM, and 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 within 1 hour inform the RE/CPM/CM of all accidents/incidents including all fatalities, any injuries to employees or members of the general public, and property damage (e.g., structural damage, equipment rollovers, utility damage, loads dropped from crane). The RE/CPM shall notify the Construction Safety Unit as per DDC's Construction Safety Emergency and Accident Notification and Response Protocol and shall maintain a record of all contractor accidents/incidents for the project.
- F. The Construction Safety Unit shall be notified within two (2) hours of the start of any NYS-DOL/ NYC-COSH/ OSHA/ EPA inspections.

IX. SAFETY PERFORMANCE EVALUATION

The contractor's safety record, including accident/incident history and DDC safety 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 may 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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WITNESSETH:

The parties, in consideration of the mutual agreements contained herein, agree as follows:

**CHAPTER I
THE CONTRACT AND DEFINITIONS**

ARTICLE 1. THE CONTRACT

1.1 Except for titles, subtitles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of this Contract:

1.1.1 All provisions required by law to be inserted in this Contract, whether actually inserted or not;

1.1.2 The Contract Drawings and Specifications;

1.1.3 The General Conditions and Special Conditions, if any;

1.1.4 The Contract;

1.1.5 The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet;

1.1.6 All Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed or the Order to Work.

1.2 Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated the most expensive way of doing the Work, unless the Contractor shall have asked for and obtained a decision in writing from the Commissioner of the Agency that is entering into this Contract, before the submission of its bid, as to what shall govern.

ARTICLE 2. DEFINITIONS

2.1 The following words and expressions, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless a different meaning is clear from the context:

2.1.1 "**Addendum**" or "**Addenda**" shall mean the additional Contract provisions and/or technical clarifications issued in writing by the Commissioner prior to the receipt of bids.

2.1.2 "**Agency**" shall mean a city, county, borough or other office, position, department, division, bureau, board or commission, or a corporation, institution or agency of government, the expenses of which are paid in whole or in part from the City treasury.

2.1.3 "**Agency Chief Contracting Officer**" (ACCO) shall mean a person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO, or his/her duly authorized representative.

2.1.4 "**Allowance**" shall mean a sum of money which the Agency may include in the total amount of the Contract for such specific contingencies as the Agency believes may be necessary to complete the Work, e.g., lead or asbestos remediation, and for which the Contractor will be paid on the basis of stipulated unit prices or a formula set forth in the Contract or negotiated between the parties provided, however, that if the Contractor is not directed to use the Allowance, the Contractor shall have no right to such money and it shall be deducted from the total amount of the Contract.

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

2.1.6 "**City Chief Procurement Officer**" (CCPO) shall mean a person delegated authority by the Mayor to coordinate and oversee the procurement activity of Mayoral agency staff, including the ACCO and any offices which have oversight responsibility for the procurement of construction, or his/her duly authorized representative.

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

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

2.1.9 "**Contract**" or "**Contract Documents**" shall mean each of the various parts of the contract referred to in Article 1 hereof, both as a whole and severally.

2.1.10 "**Contract Drawings**" shall mean only those drawings specifically entitled as such and listed in the Specifications or in any Addendum, or any drawings furnished by the Commissioner, pertaining or supplemental thereto.

2.1.11 "**Contract Work**" shall mean everything required to be furnished and done by the Contractor by any one or more of the parts of the Contract referred to in Article 1, except Extra Work as hereinafter defined.

2.1.12 "**Contractor**" shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and its, their, his/her successors, personal representatives, executors, administrators, and assigns, and any person, firm, partnership, joint venture, individual, or corporation which shall at any time be substituted in the place of the Contractor under this Contract.

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

2.1.14 "**Engineer**" or "**Architect**" or "**Project Manager**" shall mean the person so designated in writing by the Commissioner in the Notice to Proceed or the Order to Work to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be. Subject to written approval by the Commissioner, the Engineer, Architect or Project Manager may designate an authorized representative.

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

2.1.16 "**Extra Work**" shall mean Work other than that required by the Contract at the time of award which is authorized by the Commissioner pursuant to Chapter VI of this Contract.

2.1.17 "**Federal-Aid Contract**" shall mean a contract in which the United States (federal) Government provides financial funding as so designated in the Information for Bidders.

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

2.1.19 "**Final Approved Punch List**" shall mean a list, approved pursuant to Article 14.2.2, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.

2.1.20 "**Law**" or "**Laws**" shall mean the Constitution of the State of New York, the New York City Charter, the New York City Administrative Code, a statute of the United States or of the State of New York, a local law of the City of New York, any ordinance, rule or regulation having the force of law, or common law.

2.1.21 "**Materialman**" shall mean any corporation, firm, partnership, joint venture, or individual, other than employees of the Contractor, who or which contracts with the Contractor or any Subcontractor, to fabricate or deliver, or who actually fabricates or delivers, plant, materials or equipment to be incorporated in the Work.

2.1.22 "**Means and Methods of Construction**" shall mean the labor, materials, temporary structures, tools, plant, and construction equipment, and the manner and time of their use, necessary to accomplish the result intended by this Contract.

2.1.23 "**Notice to Proceed**" or "**Order to Work**" shall mean the written notice issued by the Commissioner specifying the time for commencement of the Work and the Engineer, Architect or Project Manager.

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

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

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

2.1.27 "**Procurement Policy Board**" (PPB) shall mean the Agency of the City of New York whose function is to establish comprehensive and consistent procurement policies and rules which shall have broad application throughout the City.

2.1.28 "**Required Quantity**" in a unit price Contract shall mean the actual quantity of any item of Work or materials which is required to be performed or furnished in order to comply with the Contract.

2.1.29 "**Resident Engineer**" shall mean the representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the Work.

2.1.30 "**Site**" shall mean the area upon or in which the Contractor's operations are carried on, and such other areas adjacent thereto as may be designated as such by the Engineer.

2.1.31 "**Small Tools**" shall mean items that are ordinarily required for a worker's job function, including but not limited to, equipment that ordinarily has no licensing, insurance

or substantive storage costs associated with it; such as circular and chain saws, impact drills, threaders, benders, wrenches, socket tools, etc.

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

2.1.33 "**Subcontractor**" shall mean any person, firm or corporation, other than employees of the Contractor, who or which contracts with the Contractor or with its subcontractors to furnish, or actually furnishes labor, or labor and materials, or labor and equipment, or superintendence, supervision and/or management at the Site. Wherever the word Subcontractor appears, it shall also mean sub-Subcontractor.

2.1.34 "**Substantial Completion**" shall mean the written determination by the Engineer that the Work required under this Contract is substantially, but not entirely, complete and the approval of the **Final Approved Punch List**.

2.1.35 "**Work**" shall mean all services required to complete the Project in accordance with the Contract Documents, including without limitation, labor, material, superintendence, management, administration, equipment, and incidentals, and obtaining any and all permits, certifications and licenses as may be necessary and required to complete the Work, and shall include both Contract Work and Extra Work.

CHAPTER II THE WORK AND ITS PERFORMANCE

ARTICLE 3. CHARACTER OF THE WORK

3.1 Unless otherwise expressly provided in the **Contract Drawings, Specifications, and Addenda**, the **Work** shall be performed in accordance with the best modern practice, utilizing, unless otherwise specified in writing, new and unused materials of standard first grade quality and workmanship and design of the highest quality, to the satisfaction of the **Commissioner**.

ARTICLE 4. MEANS AND METHODS OF CONSTRUCTION

4.1 Unless otherwise expressly provided in the **Contract Drawings, Specifications, and Addenda**, the **Means and Methods of Construction** shall be such as the Contractor may choose; subject, however, to the Engineer's right to reject the **Means and Methods of Construction** proposed by the Contractor which in the opinion of the Engineer:

4.1.1 Will constitute or create a hazard to the **Work**, or to persons or property; or

4.1.2 Will not produce finished **Work** in accordance with the terms of the **Contract**; or

4.1.3 Will be detrimental to the overall progress of the **Project**.

4.2 The Engineer's approval of the Contractor's **Means and Methods of Construction**, or his/her failure to exercise his/her right to reject such means or methods, shall not relieve the Contractor of its obligation to complete the **Work** as provided in this **Contract**; nor shall the exercise of such right to reject create a cause of action for damages.

ARTICLE 5. COMPLIANCE WITH LAWS

5.1 The **Contractor** shall comply with all **Laws** applicable to this **Contract** and to the **Work** to be done hereunder.

5.2 Procurement Policy Board Rules: This **Contract** is subject to the Rules of the **PPB** ("**PPB Rules**") in effect at the time of the bid opening for this **Contract**. In the event of a conflict between the **PPB Rules** and a provision of this **Contract**, the **PPB Rules** shall take precedence.

5.3 Noise Control Code provisions.

5.3.1 In accordance with the provisions of Section 24-216(b) of the Administrative Code of the **City** ("**Administrative Code**"), Noise Abatement Contract Compliance, devices and activities which will be operated, conducted, constructed or manufactured pursuant to this **Contract** and which are subject to the provisions of the **City Noise Control Code** shall be operated, conducted, constructed, or manufactured without causing a violation of the **Administrative Code**. Such devices and activities shall incorporate advances in the art of noise control development for the kind and level of noise emitted or produced by such devices and activities, in accordance with regulations issued by the **Commissioner** of the **City Department of Environmental Protection**.

5.3.2 The **Contractor** agrees to comply with Section 24-219 of the Administrative Code and implementing rules codified at 15 Rules of the **City of New York** ("**RCNY**") Section 28-100 *et seq.* In accordance with such provisions, the **Contractor**, if the **Contractor** is the responsible party under such regulations, shall prepare and post a Construction Noise Mitigation Plan at each **Site**, in which the **Contractor** shall certify that all construction tools and equipment have been maintained so that they operate at normal manufacturers operating specifications. If the **Contractor** cannot make this certification, it must have in place an Alternative Noise Mitigation Plan approved by the **City Department of Environmental Protection**. In addition, the **Contractor's** certified Construction Noise Mitigation Plan is subject inspection by the **City Department of Environmental Protection** in accordance with Section 28-101 of Title 15 of **RCNY**. No **Contract Work** may take place at a **Site** unless there is a Construction Noise Mitigation Plan or approved Alternative Noise Mitigation Plan in place. In addition, the **Contractor** shall create and implement a noise mitigation training program. Failure to comply with these requirements may result in fines and other penalties pursuant to the applicable provisions of the **Administrative Code** and **RCNY**.

5.4 Ultra Low Sulfur Diesel Fuel: In accordance with the provisions of Section 24-163.3 of the **Administrative Code**, the **Contractor** specifically agrees as follows:

5.4.1 Definitions. For purposes of this Article 5.4, the following definitions apply:

5.4.1(a) "**Contractor**" means any person or entity that enters into a **Public Works Contract** with a **City Agency**, or any person or entity that enters into an agreement with such person or entity, to perform work or provide labor or services related to such **Public Works Contract**.

5.4.1(b) "**Motor Vehicle**" means any self-propelled vehicle designed for transporting persons or property on a street or highway.

5.4.1(c) "**Nonroad Engine**" means an internal combustion engine (including the fuel system) that is not used in a **Motor Vehicle** or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of

Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.4.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this term shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) horsepower or less and that are not used in any construction program or project.

5.4.1(e) "Public Works Contract" means a contract with a City Agency for a construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a City Agency for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a City Agency for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

5.4.1(f) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.4.2 Ultra Low Sulfur Diesel Fuel

5.4.2(a) All **Contractors** shall use Ultra Low Sulfur Diesel Fuel in diesel-powered Nonroad Vehicles in the performance of this **Contract**.

5.4.2(b) Notwithstanding the requirements of Article 5.4.2(a), **Contractors** may use diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) to fulfill the requirements of this Article 5.4.2, where the Commissioner of the City Department of Environmental Protection ("DEP Commissioner") has issued a determination that a sufficient quantity of Ultra Low Sulfur Diesel Fuel is not available to meet the needs of **Agencies** and **Contractors**. Any such determination shall expire after six (6) months unless renewed.

5.4.2(c) **Contractors** shall not be required to comply with this Article 5.4.2 where the **City Agency** letting this **Contract** makes a written finding, which is approved, in writing, by the DEP Commissioner, that a sufficient quantity of Ultra Low Sulfur Diesel Fuel, or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is not available to meet the requirements of Section 24-163.3 of the Administrative Code, provided that such **Contractor** in its fulfillment of the requirements of this **Contract**, to the extent practicable, shall use whatever quantity of Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is available. Any finding made pursuant to this Article 5.4.2(c) shall expire after sixty (60) **Days**, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the **City Agency** renews the finding in writing and such renewal is approved by the DEP Commissioner.

5.4.2(d) **Contractors** may check on determinations and approvals issued by the DEP Commissioner pursuant to Section 24-163.3 of the Administrative Code, if any, at www.dep.nyc.gov or by contacting the **City Agency** letting this **Contract**.

5.4.2(e) The requirements of this Article 5.4.2 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.3 Best Available Technology

5.4.3(a) All **Contractors** shall utilize the best available technology for reducing the emission of pollutants for diesel-powered Nonroad Vehicles in the performance of this **Contract**. For determinations of best available technology for each type of diesel-powered Nonroad Vehicle, **Contractors** shall comply with the regulations of the City Department of Environmental Protection, as and when adopted, Chapter 14 of Title 15 of the Rules of the City of New York (RCNY). The **Contractor** shall fully document all steps in the best available technology selection process and shall furnish such documentation to the **City Agency** or the DEP Commissioner upon request. The **Contractor** shall retain all documentation generated in the best available technology selection process for as long as the selected best available technology is in use.

5.4.3(b) No **Contractor** shall be required to replace best available technology for reducing the emission of pollutants or other authorized technology utilized for a diesel-powered Nonroad Vehicle in accordance with the provisions of this Article 5.4.3 within three (3) years of having first utilized such technology for such vehicle.

5.4.3(c) This Article 5.4.3 shall not apply to any vehicle used to satisfy the requirements of a specific Public Works Contract for fewer than twenty (20) **Days**.

5.4.3(d) The **Contractor** shall not be required to comply with this Article 5.4.3 with respect to a diesel-powered Nonroad Vehicle under the following circumstances:

5.4.3(d)(i) Where the **City Agency** makes a written finding, which is approved, in writing, by the DEP Commissioner, that the best available technology for reducing the emission of pollutants as required by this Article 5.4.3 is unavailable for such vehicle, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle.

5.4.3(d)(ii) Where the DEP Commissioner has issued a written waiver based upon the **Contractor** having demonstrated to the DEP Commissioner that the use of the best available technology for reducing the emission of pollutants might endanger the operator of such vehicle or those working near such vehicle, due to engine malfunction, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle, which would not endanger the operator of such vehicle or those working near such vehicle.

5.4.3(d)(iii) In determining which technology to use for the purposes of Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above, the **Contractor** shall primarily consider the reduction in emissions of particulate matter and secondarily consider the reduction in emissions of nitrogen oxides associated with the use of such

technology, which shall in no event result in an increase in the emissions of either such pollutant.

5.4.3(d)(iv) The **Contractor** shall submit requests for a finding or a waiver pursuant to this Article 5.4.3(d) in writing to the DEP Commissioner, with a copy to the **ACCO** of the **City Agency** letting this **Contract**. Any finding or waiver made or issued pursuant to Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above shall expire after one hundred eighty (180) **Days**, at which time the requirements of Article 5.4.3(a) shall be in full force and effect unless the **City Agency** renews the finding, in writing, and the DEP Commissioner approves such finding, in writing, or the DEP Commissioner renews the waiver, in writing.

5.4.3(e) The requirements of this Article 5.4.3 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.4 Section 24-163 of the Administrative Code. The **Contractor** shall comply with Section 24-163 of the Administrative Code related to the idling of the engines of motor vehicles while parking.

5.4.5 Compliance

5.4.5(a) The **Contractor's** compliance with Article 5.4 may be independently monitored. If it is determined that the **Contractor** has failed to comply with any provision of Article 5.4, any costs associated with any independent monitoring incurred by the **City** shall be reimbursed by the **Contractor**.

5.4.5(b) Any **Contractor** who violates any provision of Article 5.4, except as provided in Article 5.4.5(c) below, shall be liable for a civil penalty between the amounts of one thousand (\$1,000) and ten thousand (\$10,000) dollars, in addition to twice the amount of money saved by such **Contractor** for failure to comply with Article 5.4.

5.4.5(c) No **Contractor** shall make a false claim with respect to the provisions of Article 5.4 to a **City Agency**. Where a **Contractor** has been found to have done so, such **Contractor** shall be liable for a civil penalty of twenty thousand (\$20,000) dollars, in addition to twice the amount of money saved by such **Contractor** in association with having made such false claim.

5.4.6 Reporting

5.4.6(a) For all Public Works Contracts covered by this Article 5.4, the **Contractor** shall report to the **City Agency** the following information:

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

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

5.4.6(a)(iii) The number of such Nonroad Vehicles that utilized the best available technology for reducing the emission of pollutants, including a breakdown by vehicle model and the type of technology;

5.4.6(a)(iv) The number of such Nonroad Vehicles that utilized such other authorized technology in accordance with Article 5.4.3, including a breakdown by vehicle model and the type of technology used for each such vehicle;

5.4.6(a)(v) The locations where such Nonroad Vehicles were used; and

5.4.6(a)(vi) Where a determination is in effect pursuant to Article 5.4.2(b) or 5.4.2(c), detailed information concerning the Contractor's efforts to obtain Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm).

5.4.6(b) The Contractor shall submit the information required by Article 5.4.6(a) at the completion of Work under the Public Works Contract and on a yearly basis no later than August 1 throughout the term of the Public Works Contract. The yearly report shall cover Work performed during the preceding fiscal year (July 1 - June 30).

5.5 Ultra Low Sulfur Diesel Fuel. In accordance with the Coordinated Construction Act for Lower Manhattan, as amended:

5.5.1 Definitions. For purposes of this Article 5.5, the following definitions apply:

5.5.1(a) "Lower Manhattan" means the area to the south of and within the following lines: a line beginning at a point where the United States pierhead line in the Hudson River as it exists now or may be extended would intersect with the southerly line of West Houston Street in the Borough of Manhattan extended, thence easterly along the southerly side of West Houston Street to the southerly side of Houston Street, thence easterly along the southerly side of Houston Street to the southerly side of East Houston Street, thence northeasterly along the southerly side of East Houston Street to the point where it would intersect with the United States pierhead line in the East River as it exists now or may be extended, including tax lots within or immediately adjacent thereto.

5.5.1(b) "Lower Manhattan Redevelopment Project" means any project in Lower Manhattan that is funded in whole or in part with federal or State funding, or any project intended to improve transportation between Lower Manhattan and the two air terminals in the City known as LaGuardia Airport and John F. Kennedy International Airport, or between Lower Manhattan and the air terminal in Newark known as Newark Liberty International Airport, and that is funded in whole or in part with federal funding.

5.5.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.5.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower (HP) and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except

that this terms shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) HP or less and that are not used in any construction program or project.

5.5.1(e) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.5.2 Requirements. **Contractors** and **Subcontractors** are required to use only Ultra Low Sulfur Diesel Fuel to power the diesel-powered Nonroad Vehicles with engine HP rating of fifty (50) HP and above used on a Lower Manhattan Redevelopment Project and, where practicable, to reduce the emission of pollutants by retrofitting such Nonroad Vehicles with oxidation catalysts, particulate filters, or technology that achieves lowest particulate matter emissions.

5.6 Pesticides. In accordance with Section 17-1209 of the Administrative Code, to the extent that the **Contractor** or any **Subcontractor** applies pesticides to any property owned or leased by the **City**, the **Contractor**, and any **Subcontractor** shall comply with Chapter 12 of the Administrative Code.

5.7 Waste Treatment, Storage, and Disposal Facilities and Transporters. In connection with the **Work**, the **Contractor** and any **Subcontractor** shall use only those waste treatment, storage, and disposal facilities and waste transporters that possess the requisite license, permit or other governmental approval necessary to treat, store, dispose, or transport the waste, materials or hazardous substances.

5.8 Environmentally Preferable Purchasing. The **Contractor** shall ensure that products purchased or leased by the **Contractor** or any **Subcontractor** for the **Work** that are not specified by the **City** or are submitted as equivalents to a product specified by the **City** comply with the requirements of the New York City Environmentally Preferable Purchasing Program contained in Chapter 11 of Title 43 of the RCNY, pursuant to Chapter 3 of Title 6 of the Administrative Code.

ARTICLE 6. INSPECTION

6.1 During the progress of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall at all times afford the representatives of the **City** every reasonable, safe, and proper facility for inspecting all **Work** done or being done at the **Site** and also for inspecting the manufacture or preparation of materials and equipment at the place of such manufacture or preparation.

6.2 The **Contractor's** obligation hereunder shall include the uncovering or taking down of finished **Work** and its restoration thereafter; provided, however, that the order to uncover, take down and restore shall be in writing, and further provided that if **Work** thus exposed proves satisfactory, and if the **Contractor** has complied with Article 6.1, such uncovering or taking down and restoration shall be considered an item of **Extra Work** to be paid for in accordance with the provisions of Article 26. If the **Work** thus exposed proves unsatisfactory, the **City** has no obligation to compensate the **Contractor** for the uncovering, taking down or restoration.

6.3 Inspection and approval by the **Commissioner**, the **Engineer**, **Project Manager**, or **Resident Engineer**, of finished **Work** or of **Work** being performed, or of materials and equipment at the place of manufacture or preparation, shall not relieve the **Contractor** of its obligation to perform the **Work** in strict accordance with the **Contract**. Finished or unfinished **Work** not found to be in strict accordance with the **Contract** shall be replaced as directed by the **Engineer**, even though such **Work** may have been previously approved and paid for. Such corrective **Work** is **Contract Work** and shall not be deemed **Extra Work**.

6.4 Rejected **Work** and materials shall be promptly taken down and removed from the **Site**, which must at all times be kept in a reasonably clean and neat condition.

**ARTICLE 7. PROTECTION OF WORK AND OF PERSONS
AND PROPERTY; NOTICES AND INDEMNIFICATION**

7.1 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall be under an absolute obligation to protect the finished and unfinished **Work** against any damage, loss, injury, theft and/or vandalism and in the event of such damage, loss, injury, theft and/or vandalism, it shall promptly replace and/or repair such **Work** at the **Contractor's** sole cost and expense, as directed by the **Resident Engineer**. The obligation to deliver finished **Work** in strict accordance with the **Contract** prior to **Final Acceptance** shall be absolute and shall not be affected by the **Resident Engineer's** approval of, or failure to prohibit, the **Means and Methods of Construction** used by the **Contractor**.

7.2 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall take all reasonable precautions to protect all persons and the property of the **City** and of others from damage, loss or injury resulting from the **Contractor's**, and/or its **Subcontractors'** operations under this **Contract**. The **Contractor's** obligation to protect shall include the duty to provide, place or replace, and adequately maintain at or about the **Site** suitable and sufficient protection such as lights, barricades, and enclosures.

7.3 The **Contractor** shall comply with the notification requirements set forth below in the event of any loss, damage or injury to **Work**, persons or property, or any accidents arising out of the operations of the **Contractor** and/or its **Subcontractors** under this **Contract**.

7.3.1 The **Contractor** shall make a full and complete report in writing to the **Resident Engineer** within three (3) **Days** after the occurrence.

7.3.2 The **Contractor** shall also send written notice of any such event to all insurance carriers that issued potentially responsive policies (including commercial general liability insurance carriers for events relating to the **Contractor's** own employees) no later than twenty (20) days after such event and again no later than twenty (20) days after the initiation of any claim and/or action resulting therefrom. Such notice shall contain the following information: the number of the insurance policy, the name of the Named Insured, the date and location of the incident, and the identity of the persons injured or property damaged. For any policy on which the **City** and/or the **Engineer, Architect, or Project Manager** are Additional Insureds, such notice shall expressly specify that "this notice is being given on behalf of the **City of New York** as Additional Insured, such other Additional Insureds, as well as the Named Insured."

7.3.2(a) Whenever such notice is sent under a policy on which the **City** is an Additional Insured, the **Contractor** shall provide copies of the notice to the **Comptroller**, the **Commissioner** and the **City Corporation Counsel**. The copy to the **Comptroller** shall be sent to the Insurance Unit, NYC Comptroller's Office, 1 Centre Street – Room 1222, New York, New York, 10007. The copy to the **Commissioner** shall be sent to the address set forth in Schedule A of the General Conditions. The copy to the **City Corporation Counsel** shall be sent to Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

7.3.2(b) If the **Contractor** fails to provide any of the foregoing notices to any appropriate insurance carrier(s) in a timely and complete manner, the **Contractor** shall indemnify the **City** for all losses, judgments, settlements, and expenses, including reasonable attorneys' fees, arising from an insurer's disclaimer of coverage citing late notice by or on behalf of the **City**.

7.4 To the fullest extent permitted by law, the **Contractor** shall defend, indemnify, and hold the **City**, its employees, and officials (the "Indemnitees") harmless against any and all claims (including but not limited to claims asserted by any employee of the **Contractor** and/or its **Subcontractors**) and costs and expenses of whatever kind (including but not limited to payment or reimbursement of attorneys' fees and disbursements) allegedly arising out of or in any way related to the operations of the **Contractor** and/or its **Subcontractors** in the performance of this **Contract** or from the **Contractor's** and/or its **Subcontractors'** failure to comply with any of the provisions of this **Contract** or of the **Law**. Such costs and expenses shall include all those incurred in defending the underlying claim and those incurred in connection with the enforcement of this Article 7.4 by way of cross-claim, third-party claim, declaratory action or otherwise. The parties expressly agree that the indemnification obligation hereunder contemplates (1) full indemnity in the event of liability imposed against the Indemnitees without negligence and solely by reason of statute, operation of **Law** or otherwise; and (2) partial indemnity in the event of any actual negligence on the part of the Indemnitees either causing or contributing to the underlying claim (in which case, indemnification will be limited to any liability imposed over and above that percentage attributable to actual fault whether by statute, by operation of **Law**, or otherwise). Where partial indemnity is provided hereunder, all costs and expenses shall be indemnified on a pro rata basis.

7.4.1 Indemnification under Article 7.4 or any other provision of the **Contract** shall operate whether or not **Contractor** or its **Subcontractors** have placed and maintained the insurance specified under Article 22.

7.5 The provisions of this Article 7 shall not be deemed to create any new right of action in favor of third parties against the **Contractor** or the **City**.

CHAPTER III TIME PROVISIONS

ARTICLE 8. COMMENCEMENT AND PROSECUTION OF THE WORK

8.1 The **Contractor** shall commence the **Work** on the date specified in the **Notice to Proceed** or the **Order to Work**. The time for performance of the **Work** under the **Contract** shall be computed from the date specified in the **Notice to Proceed** or the **Order to Work**. **TIME BEING OF THE ESSENCE** to the **City**, the **Contractor** shall thereafter prosecute the **Work** diligently, using such **Means and Methods of Construction** as are in accord with Article 4 herein and as will assure its completion not later than the date specified in this **Contract**, or on the date to which the time for completion may be extended.

ARTICLE 9. PROGRESS SCHEDULES

9.1 To enable the **Work** to be performed in an orderly and expeditious manner, the **Contractor**, within fifteen (15) **Days** after the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Engineer**, shall submit to the **Engineer** a proposed progress schedule based on the Critical Path Method in the form of a bar graph or in such other form as specified by the **Engineer**, and monthly cash flow requirements, showing:

9.1.1 The anticipated time of commencement and completion of each of the various operations to be performed under this **Contract**; and

9.1.2 The sequence and interrelation of each of these operations with the others and with those of other related contracts; and

9.1.3 The estimated time required for fabrication or delivery, or both, of all materials and equipment required for the **Work**, including the anticipated time for obtaining required approvals pursuant to Article 10; and

9.1.4 The estimated amount in dollars the **Contractor** will claim on a monthly basis.

9.2 The proposed schedule shall be revised as directed by the **Engineer**, until finally approved by the **Engineer**, and after such approval, subject to the provisions of Article 11, shall be strictly adhered to by the **Contractor**.

9.3 If the **Contractor** shall fail to adhere to the approved progress schedule, or to the schedule as revised pursuant to Article 11, it shall promptly adopt such other or additional **Means and Methods of Construction**, at its sole cost and expense, as will make up for the time lost and will assure completion in accordance with the approved progress schedule. The approval by the **City** of a progress schedule which is shorter than the time allotted under the **Contract** shall not create any liability for the **City** if the approved progress schedule is not met.

9.4 The **Contractor** will not receive any payments until the proposed progress schedule is submitted.

ARTICLE 10. REQUESTS FOR INFORMATION OR APPROVAL

10.1 From time to time as the **Work** progresses and in the sequence indicated by the approved progress schedule, the **Contractor** shall submit to the **Engineer** a specific request in writing for each item of information or approval required by the **Contractor**. These requests shall state the latest date upon which the information or approval is actually required by the **Contractor**, and shall be submitted in a reasonable time in advance thereof to provide the **Engineer** a sufficient time to act upon such submissions, or any necessary re-submissions thereof.

10.2 The **Contractor** shall not have any right to an extension of time on account of delays due to the **Contractor's** failure to submit requests for the required information or the required approval in accordance with the above requirements.

ARTICLE 11. NOTICE OF CONDITIONS CAUSING DELAY AND DOCUMENTATION OF DAMAGES CAUSED BY DELAY

11.1 After the commencement of any condition which is causing or may cause a delay in completion of the **Work**, including conditions for which the **Contractor** may be entitled to an extension of time, the following notifications and submittals are required:

11.1.1 Within seven (7) **Days** after the commencement of such condition, the **Contractor** must notify the **Engineer** in writing of the existence, nature and effect of such condition upon the approved progress schedule and the **Work**, and must state why and in what respects, if any, the condition is causing or may cause a delay.

11.1.2 If the **Contractor** shall claim to be sustaining damages for delay as provided for in this Article 11, within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter for as long as such damages are being incurred, the **Contractor** shall submit to the **Commissioner** verified written statements of the details and the amounts of such damages, together with documentary evidence of such damages, ("statement of delay damages") as further detailed in Article 11.6. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. On failure of the **Contractor** to strictly comply with all of the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action arising under or by reason of this **Contract** shall not be different from or in excess of the statements made and documentation provided pursuant to this Article 11.

11.1.3 Within 60 days of submission of the final verified statement of claims pursuant to Article 44, the **Commissioner** shall make a determination as to whether a compensable delay has occurred and, if so, the amount of compensation due the **Contractor**. Notwithstanding the above, the **Commissioner** may make a determination as to whether a compensable delay has occurred at any time after the **Contractor's** first submission of a statement of delay damages provided, however, that the amount of compensation due to the **Contractor** will not be determined until the **Commissioner** determines that the **Work** is delayed after the date set for substantial completion.

11.2 Failure of the **Contractor** to strictly comply with the requirements of Article 11.1.1 may, in the discretion of the **Commissioner**, be deemed sufficient cause to deny any extension of time on account of delay arising out of such condition. Failure of the **Contractor** to strictly comply with the requirements of Articles 11.1.1 and 11.1.2 shall be deemed a conclusive waiver by the **Contractor** of any and all claims for damages for delay arising from such condition and no right to recover on such claims shall exist.

11.3 When appropriate and directed by the **Engineer**, the progress schedule shall be revised by the **Contractor** until finally approved by the **Engineer**. The revised progress schedule must be strictly adhered to by the **Contractor**.

11.4 Compensable Delays

11.4.1 The **Contractor** agrees to make claim only for additional costs attributable to delay in the performance of this **Contract** necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the **Project** schedule, occasioned solely by any act or omission to act of the **City** listed below. The **Contractor** also agrees that delay from any other cause shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**.

11.4.1.1 The failure of the **City** to take reasonable measures to coordinate and progress the **Work**, except that the **City** shall not be responsible for the **Contractor's** obligation to coordinate and progress the **Work** of its **Subcontractors**.

11.4.1.2 Extended delays attributable to the **City** in the review or issuance of change orders, in shop drawing reviews and approvals or as a result of the cumulative impact of multiple change orders, which have a verifiable impact on **Project** costs.

11.4.1.3 The unavailability of the **Site** for an extended period of time that significantly affects the scheduled completion of the **Contract**.

- 11.4.1.4 The issuance by the **Engineer** of a stop work order relative to a substantial portion of the **Work** for a period exceeding thirty (30) **Days**, that was not brought about through any action or omission of the **Contractor**.
- 11.4.1.5 Differing site conditions that were neither known nor reasonably ascertainable on a pre-bid inspection of the **Site** or review of the bid documents or other publicly available sources, and that are not ordinarily encountered in the **Project's** geographical area or neighborhood or in the type of **Work** to be performed.
- 11.4.1.6 Delays caused by the **City's** bad faith or its willful, malicious, or grossly negligent conduct;
- 11.4.1.7 Delays not contemplated by the parties;
- 11.4.1.8 Delays so unreasonable that they constitute an intentional abandonment of the **Contract** by the **City**; and
- 11.4.1.9 Delays resulting from the **City's** breach of a fundamental obligation of the **Contract**.

11.4.2 No claim may be made for any alleged delay in **Substantial Completion** of the **Work** by a date earlier than the date of **Substantial Completion** provided for in Schedule A unless there is a provision in the **Contract** providing for additional compensation for early completion. No claim may be made for any alleged delay in **Substantial Completion** of the **Work** if the work is substantially completed by the date of **Substantial Completion** provided for in Schedule A unless acceleration has been directed by the **Commissioner** to meet the date of **Substantial Completion** set forth in Schedule A.

11.4.3 The provisions of this Article 11 apply only to claims for additional costs attributable to delay and do not preclude determinations by the **Commissioner** allowing reimbursements for additional costs for **Extra Work** pursuant to Articles 25 and 26 of this **Contract**. To the extent that any cost attributable to delay is reimbursed as part of a change order, no additional claim for compensation under this Article 11 shall be allowed.

11.5 **Non-Compensable Delays.** The **Contractor** agrees to make no claim for, and is deemed to have included in its bid prices for the various items of the **Contract**, the extra/additional costs attributable to any delays caused by or attributable to the items set forth below. For such items, the **Contractor** shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**, in accordance with the provisions of Article 13. Such extensions of time will be granted, if at all, pursuant to the grounds set forth in Article 13.3.

11.5.1 The acts or omissions of any third parties, including but not limited to **Other Contractors**, public/ governmental bodies (other than **City Agencies**), utilities or private enterprises, who are disclosed in the **Contract Documents** or are ordinarily encountered or generally recognized as related to the **Work**;

11.5.2 Any situation which was within the contemplation of the parties at the time of entering into the **Contract**, including any delay indicated or disclosed in the **Contract Documents** or generally recognized as related to the nature of the **Work**, and/or the existence of any facility or appurtenance owned, operated or maintained by any third party, as indicated or disclosed in the **Contract Documents** or ordinarily encountered or generally recognized as related to the nature of the **Work**;

11.5.3 Restraining orders, injunctions or judgments issued by a court which were caused by a Contractor's submission, action or inaction or by a Contractor's **Means and Methods of**

Construction, or by third parties, unless such order, injunction or judgment was the result of an action or omission by the City;

11.5.4 Any labor boycott, strike, picketing, lockout or similar situation;

11.5.5 Any shortages of supplies or materials, or unavailability of equipment, required by the **Contract Work**;

11.5.6 Climatic conditions; storms, floods, droughts, tidal waves, fires, hurricanes, earthquakes, landslides or other catastrophes or acts of God, or acts of war or of the public enemy or terrorist acts, including the City's reasonable responses thereto; and

11.5.7 **Extra Work** which does not significantly affect the overall completion of the **Contract**, reasonable delays in the review or issuance of change orders or field orders and/or in shop drawing reviews or approvals.

11.6 Required Content of Submission of Statement of Delay Damages

11.6.1 In the verified written statement of delay damages required by Article 11.1.2, the following information shall be provided by the **Contractor**:

11.6.1.1 For each delay, the start and end dates of the claimed periods of delay and, in addition, a description of the operations that were delayed, an explanation of how they were delayed, and the reasons for the delay, including identifying the applicable act or omission of the City listed in Article 11.4.

11.6.1.2 A detailed factual statement of the claim providing all necessary dates, locations and items of **Work** affected by the claim.

11.6.1.3 The amount of additional compensation sought and a breakdown of that amount into categories as described in Article 26.2, subject to the limitations set forth in Article 11.7.

11.6.1.4 Any additional information requested by the **Commissioner**.

11.7 Recoverable Costs

11.7.1 Delay damages may be recoverable for the following costs actually and necessarily incurred in the performance of the **Work**:

11.7.1.1 Direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits, based on time and materials records;

11.7.1.2 Necessary materials (including transportation to the **Site**), based on time and material records;

11.7.1.3 Reasonable rental value of necessary plant and equipment other than small tools, plus fuel/energy costs according to the applicable formula set forth in Articles 26.2.4 and/or 26.2.8, based on time and material records;

11.7.1.4 Insurance and bond costs;

11.7.1.5 Extended field office costs;

11.7.1.6 Extended **Site** overhead; and

11.7.1.7 Extended home office overhead.

11.7.2 Recoverable Subcontractor Costs. When the **Work** is performed by a **Subcontractor**, the **Contractor** may be paid the actual and necessary costs of such subcontracted **Work** as outlined above in Articles 11.7.1.1 through 11.7.1.6, and an

additional overhead of five (5%) percent of the costs outlined in Articles 11.7.1.1 through 11.7.1.3.

11.7.3 Non-Recoverable Costs. The parties agree that the **City** will have no liability for the following items and the **Contractor** agrees it shall make no claim for the following items:

11.7.3.1 Profit, or loss of anticipated or unanticipated profit;

11.7.3.2 Consequential damages, including but not limited to interest on monies in dispute, including interest which is paid on such monies, loss of bonding capacity, bidding opportunities, or interest in investment, or any resulting insolvency;

11.7.3.3 Indirect costs or expenses of any nature;

11.7.3.4 Direct or indirect costs attributable to performance of **Work** where the **Contractor**, because of situations or conditions within its control, has not progressed the **Work** in a satisfactory manner; and

11.7.3.5 Attorneys' fees and dispute and claims preparation expenses.

11.8 Determinations under this Article 11 are not subject to the jurisdiction of the Contract Dispute Resolution Board pursuant to the dispute resolution process set forth in Article 27.

11.9 If the parties agree, pursuant to Article 11.1.3 above, that a compensable delay has occurred and agree on the amount of compensation, payment may be made pursuant to a written change order. Payment pursuant to such change order is subject to pre-audit by the **Engineering Audit Officer**, and may be post-audited by the **Comptroller** and/or the **Agency**.

ARTICLE 12. COORDINATION WITH OTHER CONTRACTORS

12.1 During the progress of the **Work**, **Other Contractors** may be engaged in performing other work or may be awarded other contracts for additional work on this **Project**. In that event, the **Contractor** shall coordinate the **Work** to be done hereunder with the work of such **Other Contractors** and the **Contractor** shall fully cooperate with such **Other Contractors** and carefully fit its own **Work** to that provided under other contracts as may be directed by the **Engineer**. The **Contractor** shall not commit or permit any act which will interfere with the performance of work by any **Other Contractors**.

12.2 If the **Engineer** determines that the **Contractor** is failing to coordinate its **Work** with the work of **Other Contractors** as the **Engineer** has directed, then the **Commissioner** shall have the right to withhold any payments otherwise due hereunder until the **Contractor** completely complies with the **Engineer's** directions.

12.3 The **Contractor** shall notify the **Engineer** in writing if any **Other Contractor** on this **Project** is failing to coordinate its work with the **Work** of this **Contract**. If the **Engineer** finds such charges to be true, the **Engineer** shall promptly issue such directions to the **Other Contractor** with respect thereto as the situation may require. The **City** shall not, however, be liable for any damages suffered by any **Other Contractor's** failure to coordinate its work with the **Work** of this **Contract** or by reason of the **Other Contractor's** failure to promptly comply with the directions so issued by the **Engineer**, or by reason of any **Other Contractor's** default in performance, it being understood that the **City** does not guarantee the responsibility or continued efficiency of any contractor. The **Contractor** agrees to make no claim against

the City for any damages relating to or arising out of any directions issued by the **Engineer** pursuant to this Article 12 (including but not limited to the failure of any **Other Contractor** to comply or promptly comply with such directions), or the failure of the **Engineer** to issue any directions, or the failure of any **Other Contractor** to coordinate its work, or the default in performance of any **Other Contractor**.

12.4 The **Contractor** shall indemnify and hold the City harmless from any and all claims or judgments for damages and from costs and expenses to which the City may be subjected or which it may suffer or incur by reason of the **Contractor's** failure to comply with the **Engineer's** directions promptly; and the **Comptroller** shall have the right to exercise the powers reserved in Article 23 with respect to any claims which may be made for damages due to the **Contractor's** failure to comply with the **Engineer's** directions promptly. Insofar as the facts and **Law** relating to any claim would preclude the City from being completely indemnified by the **Contractor**, the City shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.5 Should the **Contractor** sustain any damage through any act or omission of any **Other Contractor** having a contract with the City for the performance of work upon the Site or of work which may be necessary to be performed for the proper prosecution of the **Work** to be performed hereunder, or through any act or omission of a subcontractor of such **Other Contractor**, the **Contractor** shall have no claim against the City for such damage, but shall have a right to recover such damage from the **Other Contractor** under the provision similar to the following provisions which apply to this **Contract** and have been or will be inserted in the contracts with such **Other Contractors**:

12.5.1 Should any **Other Contractor** having or who shall hereafter have a contract with the City for the performance of work upon the Site sustain any damage through any act or omission of the **Contractor** hereunder or through any act or omission of any **Subcontractor** of the **Contractor**, the **Contractor** agrees to reimburse such **Other Contractor** for all such damages and to defend at its own expense any action based upon such claim and if any judgment or claim (even if the allegations of the action are without merit) against the City shall be allowed the **Contractor** shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and agrees to indemnify and hold the City harmless from all such claims. Insofar as the facts and **Law** relating to any claim would preclude the City from being completely indemnified by the **Contractor**, the City shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.6 The City's right to indemnification hereunder shall in no way be diminished, waived or discharged by its recourse to assessment of liquidated damages as provided in Article 15, or by the exercise of any other remedy provided for by **Contract** or by **Law**.

ARTICLE 13. EXTENSION OF TIME FOR PERFORMANCE

13.1 If performance by the **Contractor** is delayed for a reason set forth in Article 13.3, the **Contractor** may be allowed a reasonable extension of time in conformance with this Article 13 and the **PPB Rules**.

13.2 Any extension of time may be granted only by the **ACCO** or by the Board for the Extension of Time (hereafter "Board") (as set forth below) upon written application by the **Contractor**.

13.3 Grounds for Extension: If such application is made, the **Contractor** shall be entitled to an extension of time for delay in completion of the **Work** caused solely:

13.3.1 By the acts or omissions of the City, its officials, agents or employees; or

13.3.2 By the act or omissions of **Other Contractors** on this **Project**; or

13.3.3 By supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, excessive inclement weather, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes not brought about by any act or omission of the **Contractor**).

13.3.4 The **Contractor** shall, however, be entitled to an extension of time for such causes only for the number of **Days** of delay which the **ACCO** or the Board may determine to be due solely to such causes, and then only if the **Contractor** shall have strictly complied with all of the requirements of Articles 9 and 10.

13.4 The **Contractor** shall not be entitled to receive a separate extension of time for each of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the **Work** as determined by the **ACCO** or the Board, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the **Contractor** or of its **Subcontractors** or **Materialmen**, and would of itself (irrespective of the concurrent causes) have delayed the **Work**, no extension of time will be allowed for the period of delay resulting from such act, fault or omission.

13.5 The determination made by the **ACCO** or the Board on an application for an extension of time shall be binding and conclusive on the **Contractor**.

13.6 The **ACCO** or the Board acting entirely within their discretion may grant an application for an extension of time for causes of delay other than those herein referred.

13.7 Permitting the **Contractor** to continue with the **Work** after the time fixed for its completion has expired, or after the time to which such completion may have been extended has expired, or the making of any payment to the **Contractor** after such time, shall in no way operate as a waiver on the part of the **City** of any of its rights under this **Contract**.

13.8 Application for Extension of Time:

13.8.1 Before the **Contractor's** time extension request will be considered, the **Contractor** shall notify the **ACCO** of the condition which allegedly has caused or is causing the delay, and shall submit a written application to the **ACCO** identifying:

13.8.1(a) The **Contractor**; the registration number; and **Project** description;

13.8.1(b) Liquidated damage assessment rate, as specified in the **Contract**;

13.8.1(c) Original total bid price;

13.8.1(d) The original **Contract** start date and completion date;

13.8.1(e) Any previous time extensions granted (number and duration); and

13.8.1(f) The extension of time requested.

13.8.2 In addition, the application for extension of time shall set forth in detail:

13.8.2(a) The nature of each alleged cause of delay in completing the **Work**;

13.8.2(b) The date upon which each such cause of delay began and ended and the number of **Days** attributable to each such cause;

13.8.2(c) A statement that the **Contractor** waives all claims except for those delineated in the application, and the particulars of any claims which the **Contractor** does not agree to waive. For time extensions for **Substantial Completion** and final completion payments, the application shall include a detailed statement of the dollar amounts of each element of claim item reserved; and

13.8.2(d) A statement indicating the **Contractor's** understanding that the time extension is granted only for purposes of permitting continuation of **Contract** performance and payment for **Work** performed and that the **City** retains its right to conduct an investigation and assess liquidated damages as appropriate in the future.

13.9 Analysis and Approval of Time Extensions:

13.9.1 For time extensions for partial payments, a written determination shall be made by the **ACCO** who may, for good and sufficient cause, extend the time for the performance of the **Contract** as follows:

13.9.1(a) If the **Work** is to be completed within six (6) months, the time for performance may be extended for sixty (60) **Days**;

13.9.1(b) If the **Work** is to be completed within less than one (1) year but more than six (6) months, an extension of ninety (90) **Days** may be granted;

13.9.1(c) If the **Contract** period exceeds one (1) year, besides the extension granted in Article 13.9.1(b), an additional thirty (30) **Days** may be granted for each multiple of six (6) months involved beyond the one (1) year period; or

13.9.1(d) If exceptional circumstances exist, the **ACCO** may extend the time for performance beyond the extensions in Articles 13.9.1(a), 13.9.1(b), and 13.9.1(c). In that event, the **ACCO** shall file with the Mayor's Office of Contract Services a written explanation of the exceptional circumstances.

13.9.2 For extensions of time for **Substantial Completion** and final completion payments, the **Engineer**, in consultation with the **ACCO**, shall prepare a written analysis of the delay (including a preliminary determination of the causes of delay, the beginning and end dates for each such cause of delay, and whether the delays are excusable under the terms of this **Contract**). The report shall be subject to review by and approval of the Board, which shall have authority to question its analysis and determinations and request additional facts or documentation. The report as reviewed and made final by the Board shall be made a part of the **Agency** contract file. Neither the report itself nor anything contained therein shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

13.9.3 Approval Mechanism for Time Extensions for **Substantial Completion** or Final Completion Payments: An extension shall be granted only with the approval of the Board which is comprised of the **ACCO** of the **Agency**, the **City** Corporation Counsel, and the **Comptroller**, or their authorized representatives.

13.9.4 Neither the granting of any application for an extension of time to the **Contractor** or any **Other Contractor** on this **Project** nor the papers, records or reports related to any application for or grant of an extension of time or determination related thereto shall be referred to or offered in evidence by the **Contractor** or its attorneys in any action or proceeding.

13.10 No Damage for Delay: The **Contractor** agrees to make no claim for damages for delay in the performance of this **Contract** occasioned by any act or omission to act of the **City** or any of its representatives, except as provided for in Article 11.

ARTICLE 14. COMPLETION AND FINAL ACCEPTANCE OF THE WORK

14.1 Date for **Substantial Completion**: The **Contractor** shall substantially complete the **Work** within the time fixed in Schedule A of the General Conditions, or within the time to which such **Substantial Completion** may be extended.

14.2 Determining the Date of **Substantial Completion**: The **Work** will be deemed to be substantially complete when the two conditions set forth below have been met.

14.2.1 Inspection: The **Engineer** has inspected the **Work** and has made a written determination that it is substantially complete.

14.2.2 Approval of **Final Approved Punch List** and Date for **Final Acceptance**: Following inspection of the **Work**, the **Engineer** shall furnish the **Contractor** with a final punch list, specifying all items of **Work** to be completed and proposing dates for the completion of each specified item of **Work**. The **Contractor** shall then submit in writing to the **Engineer** within ten (10) **Days** of the **Engineer** furnishing the final punch list either acceptance of the dates or proposed alternative dates for the completion of each specified item of **Work**. If the **Contractor** proposes alternative dates, then, within a reasonable time after receipt, the **Engineer**, in a written notification to the **Contractor**, shall approve the **Contractor's** completion dates or, if they are unable to agree, the **Engineer** shall establish dates for the completion of each item of **Work**. If the **Contractor** neither accepts the dates nor proposes alternative dates within ten (10) **Days**, the schedule proposed by the **Engineer** shall be deemed accepted. The latest completion date specified shall be the date for **Final Acceptance** of the **Work**.

14.3 Date of **Substantial Completion**. The date of approval of the **Final Approved Punch List**, shall be the date of **Substantial Completion**. The date of approval of the **Final Approved Punch List** shall be either (a) if the **Contractor** approves the final punch list and proposed dates for completion furnished by the **Engineer**, the date of the **Contractor's** approval; or (b) if the **Contractor** neither accepts the dates nor proposes alternative dates, ten (10) **Days** after the **Engineer** furnishes the **Contractor** with a final punch list and proposed dates for completion; or (c) if the **Contractor** proposes alternative dates, the date that the **Engineer** sends written notification to the **Contractor** either approving the **Contractor's** proposed alternative dates or establishing dates for the completion for each item of **Work**.

14.4 Determining the Date of **Final Acceptance**: The **Work** will be accepted as final and complete as of the date of the **Engineer's** inspection if, upon such inspection, the **Engineer** finds that all items on the **Final Approved Punch List** are complete and no further **Work** remains to be done. The **Commissioner** will then issue a written determination of **Final Acceptance**.

14.5 Request for Inspection: Inspection of the **Work** by the **Engineer** for the purpose of **Substantial Completion** or **Final Acceptance** shall be made within ten (10) **Days** after receipt of the **Contractor's** written request therefor.

14.6 Request for Re-inspection: If upon inspection for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer** determines that there are items of **Work** still to be performed, the **Contractor** shall promptly perform them and then request a re-inspection. If upon re-inspection, the **Engineer** determines that the **Work** is substantially complete or finally accepted, the date of such re-inspection shall be the date of **Substantial Completion** or **Final Acceptance**. Re-inspection by the **Engineer** shall be made within ten (10) **Days** after receipt of the **Contractor's** written request therefor.

14.7 Initiation of Inspection by the **Engineer**: If the **Contractor** does not request inspection or re-inspection of the **Work** for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer** may initiate such inspection or re-inspection.

ARTICLE 15. LIQUIDATED DAMAGES

15.1 In the event the **Contractor** fails to substantially complete the **Work** within the time fixed for such **Substantial Completion** in Schedule A of the General Conditions, plus authorized time extensions, or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the **Work**, the **Contractor** shall pay to the **City** the sum fixed in Schedule A of the General Conditions, for each and every **Day** that the time consumed in substantially completing the **Work** exceeds the time allowed therefor; which said sum, in view of the difficulty of accurately ascertaining the loss which the **City** will suffer by reason of delay in the **Substantial Completion** of the **Work** hereunder, is hereby fixed and agreed as the liquidated damages that the **City** will suffer by reason of such delay, and not as a penalty. This Article 15 shall also apply to the **Contractor** whether or not the **Contractor** is defaulted pursuant to Chapter X of this **Contract**. Neither the failure to assess liquidated damages nor the granting of any time extension shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

15.2 Liquidated damages received hereunder are not intended to be nor shall they be treated as either a partial or full waiver or discharge of the **City's** right to indemnification, or the **Contractor's** obligation to indemnify the **City**, or to any other remedy provided for in this **Contract** or by **Law**.

15.3 The **Commissioner** may deduct and retain out of the monies which may become due hereunder, the amount of any such liquidated damages; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages suffered by the **City**, the **Contractor** shall be liable to pay the difference.

ARTICLE 16. OCCUPATION OR USE PRIOR TO COMPLETION

16.1 Unless otherwise provided for in the **Specifications**, the **Commissioner** may take over, use, occupy or operate any part of the **Work** at any time prior to **Final Acceptance**, upon written notification to the **Contractor**. The **Engineer** shall inspect the part of the **Work** to be taken over, used, occupied, or operated, and will furnish the **Contractor** with a written statement of the **Work**, if any, which remains to be performed on such part. The **Contractor** shall not object to, nor interfere with, the **Commissioner's** decision to exercise the rights granted by Article 16. In the event the **Commissioner** takes over, uses, occupies, or operates any part of the **Work**:

16.1.1 the **Engineer** shall issue a written determination of **Substantial Completion** with respect to such part of the **Work**;

16.1.2 the **Contractor** shall be relieved of its absolute obligation to protect such part of the unfinished **Work** in accordance with Article 7;

16.1.3 the **Contractor's** guarantee on such part of the **Work** shall begin on the date of such use by the **City**; and;

16.1.4 the **Contractor** shall be entitled to a return of so much of the amount retained in accordance with Article 21 as it relates to such part of the **Work**, except so much thereof as may be retained under Articles 24 and 44.

CHAPTER IV SUBCONTRACTS AND ASSIGNMENTS

ARTICLE 17. SUBCONTRACTS

17.1 The **Contractor** shall not make subcontracts totaling an amount more than the percentage of the total **Contract** price fixed in Schedule A of the General Conditions, without prior written permission from the **Commissioner**. All subcontracts made by the **Contractor** shall be in writing. No **Work** may be performed by a **Subcontractor** prior to the **Contractor** entering into a written subcontract with the **Subcontractor** and complying with the provisions of this Article 17.

17.2 Before making any subcontracts, the **Contractor** shall submit a written statement to the **Commissioner** giving the name and address of the proposed **Subcontractor**; the portion of the **Work** and materials which it is to perform and furnish; the cost of the subcontract; the VENDEX questionnaire if required; the proposed subcontract if requested by the **Commissioner**; and any other information tending to prove that the proposed **Subcontractor** has the necessary facilities, skill, integrity, past experience, and financial resources to perform the **Work** in accordance with the terms and conditions of this **Contract**.

17.3 In addition to the requirements in Article 17.2, **Contractor** is required to list the **Subcontractor** in the web based Subcontractor Reporting System through the City's Payee Information Portal (PIP), available at www.nyc.gov/pip.¹ For each **Subcontractor** listed, **Contractor** is required to provide the following information: maximum contract value, description of **Subcontractor's** **Work**, start and end date of the subcontract and identification of the **Subcontractor's** industry. Thereafter, **Contractor** will be required to report in the system the payments made to each **Subcontractor** within 30 days of making the payment. If any of the required information changes throughout the Term of the **Contract**, **Contractor** will be required to revise the information in the system.

Failure of the **Contractor** to list a **Subcontractor** and/or to report **Subcontractor** payments in a timely fashion may result in the **Commissioner** declaring the **Contractor** in default of the **Contract** and will subject **Contractor** to liquidated damages in the amount of \$100 per day for each day that the **Contractor** fails to identify a **Subcontractor** along with the required information about the **Subcontractor** and/or fails to report payments to a **Subcontractor**, beyond the time frames set forth herein or in the notice from the **City**. Article 15 shall govern the issue of liquidated damages.

¹ In order to use the new system, a PIP account will be required. Detailed instructions on creating a PIP account and using the new system are also available at www.nyc.gov/pip. Additional assistance with PIP may be obtained by emailing the Financial Information Services Agency Help Desk at pip@fisa.nyc.gov.

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

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

17.6 Before entering into any subcontract hereunder, the **Contractor** shall provide the proposed **Subcontractor** with a complete copy of this document and inform the proposed **Subcontractor** fully and completely of all provisions and requirements of this **Contract** relating either directly or indirectly to the **Work** to be performed and the materials to be furnished under such subcontract, and every such **Subcontractor** shall expressly stipulate that all labor performed and materials furnished by the **Subcontractor** shall strictly comply with the requirements of this **Contract**.

17.7 Documents given to a prospective **Subcontractor** for the purpose of soliciting the **Subcontractor's** bid shall include either a copy of the bid cover or a separate information sheet setting forth the **Project** name, the **Contract** number (if available), the **Agency** (as noted in Article 2.1.6), and the **Project's** location.

17.8 The **Commissioner's** approval of a **Subcontractor** shall not relieve the **Contractor** of any of its responsibilities, duties, and liabilities hereunder. The **Contractor** shall be solely responsible to the **City** for the acts or defaults of its **Subcontractor** and of such **Subcontractor's** officers, agents, and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the **Contractor** to the extent of its subcontract.

17.9 If the **Subcontractor** fails to maintain the necessary facilities, skill, integrity, past experience, and financial resources (other than due to the **Contractor's** failure to make payments where required) to perform the **Work** in accordance with the terms and conditions of this **Contract**, the **Contractor** shall promptly notify the **Commissioner** and replace such **Subcontractor** with a newly approved **Subcontractor** in accordance with this Article 17.

17.10 The **Contractor** shall be responsible for ensuring that all **Subcontractors** performing **Work** at the **Site** maintain all insurance required by **Law**.

17.11 The **Contractor** shall promptly, upon request, file with the **Engineer** a conformed copy of the subcontract and its cost. The subcontract shall provide the following:

17.11.1 **Payment to Subcontractors:** The agreement between the **Contractor** and its **Subcontractor** shall contain the same terms and conditions as to method of payment for **Work**, labor, and materials, and as to retained percentages, as are contained in this **Contract**.

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

17.11.3 **Section 6-123 of the Administrative Code:** Pursuant to the requirements of Section 6-123 of the Administrative Code, every agreement between the **Contractor** and a **Subcontractor** in excess of fifty thousand (\$50,000) dollars shall include a provision that the **Subcontractor** shall not engage in any unlawful discriminatory practice as defined in Title VIII of the Administrative Code (Section 8-101 *et seq.*).

17.11.4 All requirements required pursuant to federal and/or state grant agreement(s), if applicable to the **Work**.

17.12 The **Commissioner** may deduct from the amounts certified under this **Contract** to be due to the **Contractor**, the sum or sums due and owing from the **Contractor** to the **Subcontractors** according to the terms of the said subcontracts, and in case of dispute between the **Contractor** and its **Subcontractor**, or **Subcontractors**, as to the amount due and owing, the **Commissioner** may deduct and withhold from the amounts certified under this **Contract** to be due to the **Contractor** such sum or sums as may be claimed by such **Subcontractor**, or **Subcontractors**, in a sworn affidavit, to be due and owing until such time as such claim or claims shall have been finally resolved.

17.13 On contracts where performance bonds and payment bonds are executed, the **Contractor** shall include on each requisition for payment the following data: **Subcontractor's** name, value of the subcontract, total amount previously paid to **Subcontractor** for **Work** previously requisitioned, and the amount, including retainage, to be paid to the **Subcontractor** for **Work** included in the requisition.

17.14 On **Contracts** where performance bonds and payment bonds are not executed, the **Contractor** shall include with each requisition for payment submitted hereunder, a signed statement from each and every **Subcontractor** and/or **Materialman** for whom payment is requested in such requisition. Such signed statement shall be on the letterhead of the **Subcontractor** and/or **Materialman** for whom payment is requested and shall (i) verify that such **Subcontractor** and/or **Materialman** has been paid in full for all **Work** performed and/or material supplied to date, exclusive of any amount retained and any amount included on the current requisition, and (ii) state the total amount of retainage to date, exclusive of any amount retained on the current requisition.

ARTICLE 18. ASSIGNMENTS

18.1 The **Contractor** shall not assign, transfer, convey or otherwise dispose of this **Contract**, or the right to execute it, or the right, title or interest in or to it or any part thereof, or assign, by power of attorney or otherwise any of the monies due or to become due under this **Contract**, unless the previous written consent of the **Commissioner** shall first be obtained thereto, and the giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments.

18.2 Such assignment, transfer, conveyance or other disposition of this **Contract** shall not be valid until filed in the office of the **Commissioner** and the **Comptroller**, with the written consent of the **Commissioner** endorsed thereon or attached thereto.

18.3 Failure to obtain the previous written consent of the **Commissioner** to such an assignment, transfer, conveyance or other disposition, may result in the revocation and annulment of this **Contract**. The **City** shall thereupon be relieved and discharged from any further liability to the **Contractor**, its assignees, transferees or sublessees, who shall forfeit and lose all monies therefor earned under the **Contract**, except so much as may be required to pay the **Contractor's** employees.

18.4 The provisions of this clause shall not hinder, prevent, or affect an assignment by the **Contractor** for the benefit of its creditors made pursuant to the **Laws** of the State of New York.

18.5 This **Contract** may be assigned by the **City** to any corporation, agency or instrumentality having authority to accept such assignment.

**CHAPTER V
CONTRACTOR'S SECURITY AND GUARANTEE**

ARTICLE 19. SECURITY DEPOSIT

19.1 If performance and payment bonds are required, the City shall retain the bid security to ensure that the successful bidder executes the **Contract** and furnishes the required payment and performance security within ten (10) **Days** after notice of the award of the **Contract**. If the successful bidder fails to execute the **Contract** and furnish the required payment and performance security, the City shall retain such bid security as set forth in the Information for Bidders. If the successful bidder executes the **Contract** and furnishes the required payment and performance security, the City shall return the bid security within a reasonable time after the furnishing of such bonds and execution of the **Contract** by the City.

19.2 If performance and payment bonds are not required, the bid security shall be retained by the City as security for the Contractor's faithful performance of the **Contract**. If partial payments are provided, the bid security will be returned to the Contractor after the sum retained under Article 21 equals the amount of the bid security, subject to other provisions of this **Contract**. If partial payments are not provided, the bid security will be released when final payment is certified by the City for payment.

19.3 If the Contractor is declared in default under Article 48 prior to the return of the deposit, or if any claim is made such as referred to in Article 23, the amount of such deposit, or so much thereof as the **Comptroller** may deem necessary, may be retained and then applied by the **Comptroller**:

19.3.1 To compensate the City for any expense, loss or damage suffered or incurred by reason of or resulting from such default, including the cost of re-letting and liquidated damages; or

19.3.2 To indemnify the City against any and all claims.

ARTICLE 20. PAYMENT GUARANTEE

20.1 On **Contracts** where one hundred (100%) percent performance bonds and payment bonds are executed, this Article 20 does not apply.

20.2 In the event the terms of this **Contract** do not require the Contractor to provide a payment bond or where the **Contract** does not require a payment bond for one hundred (100%) percent of the **Contract** price, the City shall, in accordance with the terms of this Article 20, guarantee payment of all lawful claims for:

20.2.1 Wages and compensation for labor performed and/or services rendered; and

20.2.2 Materials, equipment, and supplies provided, whether incorporated into the **Work** or not, when demands have been filed with the City as provided hereinafter by any person, firm, or corporation which furnished labor, material, equipment, supplies, or any combination thereof, in connection with the **Work** performed hereunder (hereinafter referred to as the "beneficiary") at the direction of the City or the Contractor.

20.3 The provisions of Article 20.2 are subject to the following limitations and conditions:

20.3.1 If the **Contractor** provides a payment bond for a value that is less than one hundred (100%) percent of the value of the **Contract Work**, the payment bond provided by the **Contractor** shall be primary (and non-contributing) to the payment guarantee provided under this Article 20.

20.3.2 The guarantee is made for the benefit of all beneficiaries as defined in Article 20.2 provided that those beneficiaries strictly adhere to the terms and conditions of Article 20.3.4 and 20.3.5.

20.3.3 Nothing in this Article 20 shall prevent a beneficiary providing labor, services or material for the **Work** from suing the **Contractor** for any amounts due and owing the beneficiary by the **Contractor**.

20.3.4 Every person who has furnished labor or material, to the **Contractor** or to a **Subcontractor** of the **Contractor**, in the prosecution of the **Work** and who has not been paid in full therefor before the expiration of a period of ninety (90) **Days** after the date on which the last of the labor was performed or material was furnished by him/her for which the claim is made, shall have the right to sue on this payment guarantee in his/her own name for the amount, or the balance thereof, unpaid at the time of commencement of the action; provided, however, that a person having a direct contractual relationship with a **Subcontractor** of the **Contractor** but no contractual relationship express or implied with the **Contractor** shall not have a right of action upon the guarantee unless he/she shall have given written notice to the **Contractor** within one hundred twenty (120) **Days** from the date on which the last of the labor was performed or the last of the material was furnished, for which his/her claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the material was furnished or for whom the labor was performed. The notice shall be served by delivering the same personally to the **Contractor** or by mailing the same by registered mail, postage prepaid, in an envelope addressed to the **Contractor** at any place where it maintains an office or conducts its business; provided, however, that where such notice is actually received by the **Contractor** by other means, such notice shall be deemed sufficient.

20.3.5 Except as provided in Labor Law Section 220-g, no action on this payment guarantee shall be commenced after the expiration of the one-year limitations period set forth in Section 137(4)(b) of the State Finance Law.

20.3.6 The **Contractor** shall promptly forward to the **City** any notice or demand received pursuant to Article 20.3.4. The **Contractor** shall inform the **City** of any defenses to the notice or demand and shall forward to the **City** any documents the **City** requests concerning the notice or demand.

20.3.7 All demands made against the **City** by a beneficiary of this payment guarantee shall be presented to the **Engineer** along with all written documentation concerning the demand which the **Engineer** deems reasonably appropriate or necessary, which may include, but shall not be limited to: the subcontract; any invoices presented to the **Contractor** for payment; the notarized statement of the beneficiary that the demand is due and payable, that a request for payment has been made of the **Contractor** and that the demand has not been paid by the **Contractor** within the time allowed for such payment by the subcontract; and copies of any correspondence between the beneficiary and the **Contractor** concerning such demand. The **City** shall notify the **Contractor** that a demand has been made. The **Contractor** shall inform the **City** of any defenses to the demand and shall forward to the **City** any documents the **City** requests concerning the demand.

20.3.8 The City shall make payment only if, after considering all defenses presented by the Contractor, it determines that the payment is due and owing to the beneficiary making the demand.

20.3.9 No beneficiary shall be entitled to interest from the City, or to any other costs, including, but not limited to, attorneys' fees, except to the extent required by State Finance Law Section 137.

20.4 Upon the receipt by the City of a demand pursuant to this Article 20, the City may withhold from any payment otherwise due and owing to the Contractor under this Contract an amount sufficient to satisfy the demand.

20.4.1 In the event the City determines that the demand is valid, the City shall notify the Contractor of such determination and the amount thereof and direct the Contractor to immediately pay such amount to the beneficiary. In the event the Contractor, within seven (7) Days of receipt of such notification from the City, fails to pay the beneficiary, such failure shall constitute an automatic and irrevocable assignment of payment by the Contractor to the beneficiary for the amount of the demand determined by the City to be valid. The Contractor, without further notification or other process, hereby gives its unconditional consent to such assignment of payment to the beneficiary and authorizes the City, on its behalf, to take all necessary actions to implement such assignment of payment, including without limitation the execution of any instrument or documentation necessary to effectuate such assignment.

20.4.2 In the event that the amount otherwise due and owing to the Contractor by the City is insufficient to satisfy such demand, the City may, at its option, require payment from the Contractor of an amount sufficient to cover such demand and exercise any other right to require or recover payment which the City may have under Law or Contract.

20.4.3 In the event the City determines that the demand is invalid, any amount withheld pending the City's review of such demand shall be paid to the Contractor; provided, however, no lien has been filed. In the event a claim or an action has been filed, the terms and conditions set forth in Article 23 shall apply. In the event a lien has been filed, the parties will be governed by the provisions of the Lien Law of the State of New York.

20.5 The provisions of this Article 20 shall not prevent the City and the Contractor from resolving disputes in accordance with the PPB Rules, where applicable.

20.6 In the event the City determines that the beneficiary is entitled to payment pursuant to this Article 20, such determination and any defenses and counterclaims raised by the Contractor shall be taken into account in evaluating the Contractor's performance.

20.7 Nothing in this Article 20 shall relieve the Contractor of the obligation to pay the claims of all persons with valid and lawful claims against the Contractor relating to the Work.

20.8 The Contractor shall not require any performance, payment or other bonds of any Subcontractor if this Contract does not require such bonds of the Contractor.

20.9 The payment guarantee made pursuant to this Article 20 shall be construed in a manner consistent with Section 137 of the State Finance Law and shall afford to persons furnishing labor or materials to the Contractor or its Subcontractors in the prosecution of the Work under this Contract all of the rights and remedies afforded to such persons by such section, including but not limited to, the right

to commence an action against the City on the payment guarantee provided by this Article 20 within the one-year limitations period set forth in Section 137(4)(b).

ARTICLE 21. RETAINED PERCENTAGE

21.1 If this **Contract** requires one hundred (100%) percent performance and payment security, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.2 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded does not exceed one million (\$1,000,000) dollars, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.3 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded exceeds one million (\$1,000,000) dollars, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, up to ten (10%) percent of the value of **Work** certified for payment in each partial payment voucher. The percentage to be retained is set forth in Schedule A of the General Conditions.

ARTICLE 22. INSURANCE

22.1 Types of Insurance: The **Contractor** shall procure and maintain the following types of insurance if, and as indicated, in Schedule A of the General Conditions (with the minimum limits and special conditions specified in Schedule A). Such insurance shall be maintained from the date the **Contractor** is required to provide Proof of Insurance pursuant to Article 22.3.1 through the date of completion of all required **Work** (including punch list work as certified in writing by the **Resident Engineer**), except for insurance required pursuant to Article 22.1.4, which may terminate upon **Substantial Completion** of the **Contract**. All insurance shall meet the requirements set forth in this Article 22. Wherever this Article requires that insurance coverage be "at least as broad" as a specified form (including all ISO forms), there is no obligation that the form itself be used, provided that the **Contractor** can demonstrate that the alternative form or endorsement contained in its policy provides coverage at least as broad as the specified form.

22.1.1 Commercial General Liability Insurance: The **Contractor** shall provide Commercial General Liability Insurance covering claims for property damage and/or bodily injury, including death, which may arise from any of the operations under this **Contract**. Coverage under this insurance shall be at least as broad as that provided by the latest edition of Insurance Services Office ("ISO") Form CG 0001. Such insurance shall be "occurrence" based rather than "claims-made" and include, without limitation, the following types of coverage: premises operations; products and completed operations; contractual liability (including the tort liability of another assumed in a contract); broad form property damage; independent contractors; explosion, collapse and underground (XCU); construction means and methods; and incidental malpractice. Such insurance shall contain a "per project" aggregate limit, as specified in Schedule A, that applies separately to operations under this **Contract**.

22.1.1(a) Such Commercial General Liability Insurance shall name the City as an Additional Insured. Coverage for the City shall specifically include the City's officials and employees, be at least as broad as the latest edition of ISO Form CG 20 10 and provide completed operations coverage at least as broad as the latest edition of ISO Form CG 20 37.

22.1.1(b) Such Commercial General Liability Insurance shall name all other entities designated as additional insureds in Schedule A but only for claims arising from the Contractor's operations under this Contract, with coverage at least as broad as the latest edition of ISO Form CG 20 26.

22.1.1(c) If the Work requires a permit from the Department of Buildings pursuant to 1 RCNY Section 101-08, at http://www.nyc.gov/html/dob/downloads/rules/1_RCNY_101-08.pdf, the Contractor shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08. If the Work does not require such a permit, the minimum limits shall be those provided for in Schedule A.

22.1.1(d) If any of the Work includes repair of a waterborne vessel owned by or to be delivered to the City, such Commercial General Liability shall include, or be endorsed to include, Ship Repairer's Legal Liability Coverage to protect against, without limitation, liability arising from navigation of such vessels prior to delivery to and acceptance by the City.

22.1.2 Workers' Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance: The Contractor shall provide, and shall cause its Subcontractors to provide, Workers Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance in accordance with the Laws of the State of New York on behalf of all employees providing services under this Contract (except for those employees, if any, for which the Laws require insurance only pursuant to Article 22.1.3).

22.1.3 United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance: If specified in Schedule A of the General Conditions or if required by Law, the Contractor shall provide insurance in accordance with the United States Longshoremen's and Harbor Workers Act and/or the Jones Act, on behalf of all qualifying employees providing services under this Contract.

22.1.4 Builders Risk Insurance: If specified in Schedule A of the General Conditions, the Contractor shall provide Builders Risk Insurance on a completed value form for the total value of the Work through Substantial Completion of the Work in its entirety. Such insurance shall be provided on an All Risk basis and include coverage, without limitation, for windstorm (including named windstorm), storm surge, flood and earth movement. Unless waived by the Commissioner, it shall include coverage for ordinance and law, demolition and increased costs of construction, debris removal, pollutant clean up and removal, and expediting costs. Such insurance shall cover, without limitation, (a) all buildings and/or structures involved in the Work, as well as temporary structures at the Site, and (b) any property that is intended to become a permanent part of such building or structure, whether such property is on the Site, in transit or in temporary storage. Policies shall name the Contractor as Named Insured and list the City as both an Additional Insured and a Loss Payee as its interest may appear.

22.1.4(a) Policies of such insurance shall specify that, in the event a loss occurs at an occupied facility, occupancy of such facility is permitted without the consent of the issuing insurance company.

22.1.4(b) Such insurance may be provided through an Installation Floater, at the **Contractor's** option, if it otherwise conforms with the requirements of this Article 22.1.4.

22.1.5 Commercial Automobile Liability Insurance: The **Contractor** shall provide Commercial Automobile Liability Insurance for liability arising out of ownership, maintenance or use of any owned (if any), non-owned and hired vehicles to be used in connection with this **Contract**. Coverage shall be at least as broad as the latest edition of ISO Form CA0001. If vehicles are used for transporting hazardous materials, the Automobile Liability Insurance shall be endorsed to provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90.

22.1.6 Contractors Pollution Liability Insurance: If specified in Schedule A of the General Conditions, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Contractors Pollution Liability Insurance covering bodily injury and property damage. Such insurance shall provide coverage for actual, alleged or threatened emission, discharge, dispersal, seepage, release or escape of pollutants (including asbestos), including any loss, cost or expense incurred as a result of any cleanup of pollutants (including asbestos) or in the investigation, settlement or defense of any claim, action, or proceedings arising from the operations under this **Contract**. Such insurance shall be in the **Contractor's** name and list the **City** as an Additional Insured and any other entity specified in Schedule A. Coverage shall include, without limitation, (a) loss of use of damaged property or of property that has not been physically injured, (b) transportation, and (c) non-owned disposal sites.

22.1.6(a) Coverage for the **City** as Additional Insured shall specifically include the **City's** officials and employees and be at least as broad as provided to the **Contractor** for this **Project**.

22.1.6(b) If such insurance is written on a claims-made policy, such policy shall have a retroactive date on or before the effective date of this **Contract**, and continuous coverage shall be maintained, or an extended discovery period exercised, for a period of not less than three (3) years from the time the **Work** under this **Contract** is completed.

22.1.7 Marine Insurance:

22.1.7(a) Marine Protection and Indemnity Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Marine Protection and Indemnity Insurance with coverage at least as broad as Form SP-23. The insurance shall provide coverage for the **Contractor** or **Subcontractor** (whichever is doing this **Work**) and for the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured for bodily injury and property damage arising from marine operations under this **Contract**. Coverage shall include, without limitation, injury or death of crew members (if not fully provided through other insurance), removal of wreck, damage to piers, wharves and other fixed or floating objects and loss of or damage to any other vessel or craft, or to property on such other vessel or craft.

22.1.7(b) Hull and Machinery Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Hull and Machinery Insurance with coverage for the **Contractor** or **Subcontractor** (whichever is doing this **Work**) and for the **City** (together with its officials and employees) as Additional Insured at least as broad as the latest edition of American Institute Tug Form for all tugs used under this **Contract** and Collision Liability at least as broad as the latest edition of American Institute Hull Clauses.

22.1.7(c) Marine Pollution Liability Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Marine Pollution Liability Insurance covering itself (or the **Subcontractor** doing such **Work**) as Named Insured and the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured. Coverage shall be at least as broad as that provided by the latest edition of Water Quality Insurance Syndicate Form and include, without limitation, liability arising from the discharge or substantial threat of a discharge of oil, or from the release or threatened release of a hazardous substance including injury to, or economic losses resulting from, the destruction of or damage to real property, personal property or natural resources.

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

22.2 General Requirements for Insurance Coverage and Policies:

22.2.1 All required insurance policies shall be maintained with companies that may lawfully issue the required policy and have an A.M. Best rating of at least A-/VII or a Standard and Poor's rating of at least A, unless prior written approval is obtained from the **City** Corporation Counsel.

22.2.2 The **Contractor** shall be solely responsible for the payment of all premiums for all required policies and all deductibles and self-insured retentions to which such policies are subject, whether or not the **City** is an insured under the policy.

22.2.3 In his/her sole discretion, the **Commissioner** may, subject to the approval of the **Comptroller** and the **City** Corporation Counsel, accept Letters of Credit and/or custodial accounts in lieu of required insurance.

22.2.4 The **City's** limits of coverage for all types of insurance required pursuant to Schedule A of the General Conditions shall be the greater of (i) the minimum limits set forth in Schedule A or (ii) the limits provided to the **Contractor** as Named Insured under all primary, excess, and umbrella policies of that type of coverage.

22.2.5 The **Contractor** may satisfy its insurance obligations under this Article 22 through primary policies or a combination of primary and excess/umbrella policies, so long as all policies provide the scope of coverage required herein.

22.2.6 Policies of insurance provided pursuant to this Article 22 shall be primary and non-contributing to any insurance or self-insurance maintained by the **City**.

22.3 Proof of Insurance:

22.3.1 For all types of insurance required by Article 22.1 and Schedule A, except for insurance required by Articles 22.1.4 and 22.1.7, the **Contractor** shall file proof of insurance in accordance with this Article 22.3 within ten (10) **Days** of award. For insurance provided pursuant to Articles 22.1.4 and 22.1.7, proof shall be filed by a date specified by the **Commissioner** or ten (10) **Days** prior to the commencement of the portion of the **Work** covered by such policy, whichever is earlier.

22.3.2 For Workers' Compensation Insurance provided pursuant to Article 22.1.2, the **Contractor** shall submit one of the following forms: C-105.2 Certificate of Workers' Compensation Insurance; U-26.3 - State Insurance Fund Certificate of Workers' Compensation Insurance; Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. For Disability Benefits Insurance provided pursuant to Article 22.1.2, the Contractor shall submit DB-120.1 - Certificate Of Insurance Coverage Under The NYS Disability Benefits Law, Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. ACORD forms are not acceptable.

22.3.3 For policies provided pursuant to all of Article 22.1 other than Article 22.1.2, the **Contractor** shall submit one or more Certificates of Insurance on forms acceptable to the **Commissioner**. All such Certificates of Insurance shall certify (a) the issuance and effectiveness of such policies of insurance, each with the specified minimum limits (b) for insurance secured pursuant to Article 22.1.1 that the **City** and any other entity specified in Schedule A is an Additional Insured with coverage at least as broad as the most recent edition of ISO Forms CG 20 10, CG 20 37, and CG 20 26, as applicable; (c) in the event insurance is required pursuant to Article 22.1.6 and/or Article 22.1.7, that the **City** is an Additional Insured thereunder; (d) the company code issued to the insurance company by the National Association of Insurance Commissioners (the NAIC number); and (e) the number assigned to the **Contract** by the **City**. All such Certificates of Insurance shall be accompanied by either a duly executed "Certification by Broker" in the form contained in Part III of Schedule A or copies of all policies referenced in such Certificate of Insurance as certified by an authorized representative of the issuing insurance carrier. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

22.3.4 Documentation confirming renewals of insurance shall be submitted to the **Commissioner** prior to the expiration date of coverage of policies required under this **Contract**. Such proofs of insurance shall comply with the requirements of Articles 22.3.2 and 22.3.3.

22.3.5 The **Contractor** shall be obligated to provide the **City** with a copy of any policy of insurance provided pursuant to this Article 22 upon the demand for such policy by the **Commissioner** or the **City** Corporation Counsel.

22.4 Operations of the Contractor:

22.4.1 The **Contractor** shall not commence the **Work** unless and until all required certificates have been submitted to and accepted by the **Commissioner**. Acceptance by the **Commissioner** of a certificate does not excuse the **Contractor** from securing insurance

consistent with all provisions of this Article 22 or of any liability arising from its failure to do so.

22.4.2 The **Contractor** shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this **Contract** and shall be authorized to perform **Work** only during the effective period of all required coverage.

22.4.3 In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the **Contractor** shall immediately stop all **Work**, and shall not recommence **Work** until authorized in writing to do so by the **Commissioner**. Upon quitting the **Site**, except as otherwise directed by the **Commissioner**, the **Contractor** shall leave all plant, materials, equipment, tools, and supplies on the **Site**. **Contract** time shall continue to run during such periods and no extensions of time will be granted. The **Commissioner** may also declare the **Contractor** in default for failure to maintain required insurance.

22.4.4 In the event the **Contractor** receives notice, from an insurance company or other person, that any insurance policy required under this Article 22 shall be cancelled or terminated (or has been cancelled or terminated) for any reason, the **Contractor** shall immediately forward a copy of such notice to both the **Commissioner** and the New York City Comptroller, attn: Office of Contract Administration, Municipal Building, One Centre Street, room 1005, New York, New York 10007. Notwithstanding the foregoing, the **Contractor** shall ensure that there is no interruption in any of the insurance coverage required under this Article 22.

22.4.5 Where notice of loss, damage, occurrence, accident, claim or suit is required under an insurance policy maintained in accordance with this Article 22, the **Contractor** shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this **Contract** (including notice to Commercial General Liability insurance carriers for events relating to the **Contractor's** own employees) no later than 20 days after such event. For any policy where the City is an Additional Insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The **Contractor** shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

22.4.6 In the event of any loss, accident, claim, action, or other event that does or can give rise to a claim under any insurance policy required under this Article 22, the **Contractor** shall at all times fully cooperate with the **City** with regard to such potential or actual claim.

22.5 **Subcontractor Insurance:** In the event the **Contractor** requires any **Subcontractor** to procure insurance with regard to any operations under this **Contract** and requires such **Subcontractor** to name the **Contractor** as an **Additional Insured** thereunder, the **Contractor** shall ensure that the **Subcontractor** name the **City**, including its officials and employees, as an **Additional Insured** with coverage at least as broad as the most recent edition of ISO Form CG 20 26.

22.6 Wherever reference is made in Article 7 or this Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Schedule A of the General Conditions. In the event no address is set forth in Schedule A, such documents are to be sent to the **Commissioner's** address as provided elsewhere in this **Contract**.

22.7 Apart from damages or losses covered by insurance provided pursuant to Articles 22.1.2, 22.1.3, or 22.1.5, the **Contractor** waives all rights against the **City**, including its officials and employees, for any damages or losses that are covered under any insurance required under this Article 22 (whether or not such insurance is actually procured or claims are paid thereunder) or any other insurance applicable to the operations of the **Contractor** and/or its employees, agents, or **Subcontractors**.

22.8 In the event the **Contractor** utilizes a self-insurance program to satisfy any of the requirements of this Article 22, the **Contractor** shall ensure that any such self-insurance program provides the **City** with all rights that would be provided by traditional insurance under this Article 22, including but not limited to the defense and indemnification obligations that insurers are required to undertake in liability policies.

22.9 Materiality/Non-Waiver: The **Contractor's** failure to secure policies in complete conformity with this Article 22, or to give an insurance company timely notice of any sort required in this **Contract** or to do anything else required by this Article 22 shall constitute a material breach of this **Contract**. Such breach shall not be waived or otherwise excused by any action or inaction by the **City** at any time.

22.10 Pursuant to General Municipal Law Section 108, this **Contract** shall be void and of no effect unless **Contractor** maintains Workers' Compensation Insurance for the term of this **Contract** to the extent required and in compliance with the New York State Workers' Compensation Law.

22.11 Other Remedies: Insurance coverage provided pursuant to this Article 22 or otherwise shall not relieve the **Contractor** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions available to it under any other provisions of this **Contract** or **Law**.

ARTICLE 23. MONEY RETAINED AGAINST CLAIMS

23.1 If any claim shall be made by any person or entity (including **Other Contractors** with the **City** on this **Project**) against the **City** or against the **Contractor** and the **City** for any of the following:

- (a) An alleged loss, damage, injury, theft or vandalism of any of the kinds referred to in Articles 7 and 12, plus the reasonable costs of defending the **City**, which in the opinion of the **Comptroller** may not be paid by an insurance company (for any reason whatsoever); or
- (b) An infringement of copyrights, patents or use of patented articles, tools, etc., as referred to in Article 57; or
- (c) Damage claimed to have been caused directly or indirectly by the failure of the **Contractor** to perform the **Work** in strict accordance with this **Contract**,

the amount of such claim, or so much thereof as the **Comptroller** may deem necessary, may be withheld by the **Comptroller**, as security against such claim, from any money due hereunder. The **Comptroller**, in his/her discretion, may permit the **Contractor** to substitute other satisfactory security in lieu of the monies so withheld.

23.2 If an action on such claim is timely commenced and the liability of the **City**, or the **Contractor**, or both, shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the **Contractor** to be valid, the **Comptroller**

shall pay such judgment or admitted claim out of the monies retained by the **Comptroller** under the provisions of this Article 23, and return the balance, if any, without interest, to the **Contractor**.

ARTICLE 24. MAINTENANCE AND GUARANTY

24.1 The **Contractor** shall promptly repair, replace, restore or rebuild, as the **Commissioner** may determine, any finished **Work** in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of **Substantial Completion** (or use and occupancy in accordance with Article 16), except where other periods of maintenance and guaranty are provided for in Schedule A.

24.2 As security for the faithful performance of its obligations hereunder, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to one (1%) percent of the price (or the amount fixed in Schedule A of the General Conditions) in cash or certified check upon a state or national bank and trust company or a check of such bank and trust company signed by a duly authorized officer thereof and drawn to the order of the **Comptroller**, or obligations of the **City**, which the **Comptroller** may approve as of equal value with the sum so required.

24.3 In lieu of the above, the **Contractor** may make such security payment to the **City** by authorizing the **Commissioner** in writing to deduct the amount from the **Substantial Completion** payment which shall be deemed the deposit required above.

24.4 If the **Contractor** has faithfully performed all of its obligations hereunder the **Commissioner** shall so certify to the **Comptroller** within five (5) **Days** after the expiration of one (1) year from the date of **Substantial Completion** and acceptance of the **Work** or within thirty (30) **Days** after the expiration of the guarantee period fixed in the **Specifications**. The security payment shall be repaid to the **Contractor** without interest within thirty (30) **Days** after certification by the **Commissioner** to the **Comptroller** that the **Contractor** has faithfully performed all of its obligations hereunder.

24.5 Notice by the **Commissioner** to the **Contractor** to repair, replace, rebuild or restore such defective or damaged **Work** shall be timely, pursuant to this article, if given not later than ten (10) **Days** subsequent to the expiration of the one (1) year period or other periods provided for herein.

24.6 If the **Contractor** shall fail to repair, replace, rebuild or restore such defective or damaged **Work** promptly after receiving such notice, the **Commissioner** shall have the right to have the **Work** done by others in the same manner as provided for in the completion of a defaulted **Contract**, under Article 51.

24.7 If the security payment so deposited is insufficient to cover the cost of such **Work**, the **Contractor** shall be liable to pay such deficiency on demand by the **Commissioner**.

24.8 The **Engineer's** certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective **Work** when performed by one other than the **Contractor**, shall be binding and conclusive upon the **Contractor** as to the amount thereof.

24.9 The **Contractor** shall obtain all manufacturers' warranties and guaranties of all equipment and materials required by this **Contract** in the name of the **City** and shall deliver same to the **Commissioner**. All of the **City's** rights and title and interest in and to said manufacturers' warranties and guaranties may be assigned by the **City** to any subsequent purchasers of such equipment and materials or lessees of the premises into which the equipment and materials have been installed.

CHAPTER VI
CHANGES, EXTRA WORK, AND DOCUMENTATION OF CLAIM

ARTICLE 25. CHANGES

25.1 Changes may be made to this **Contract** only as duly authorized in writing by the **Commissioner** in accordance with the **Law** and this **Contract**. All such changes, modifications, and amendments will become a part of the **Contract**. Work so ordered shall be performed by the **Contractor**.

25.2 **Contract** changes will be made only for **Work** necessary to complete the **Work** included in the original scope of the **Contract** and/or for non-material changes to the scope of the **Contract**. Changes are not permitted for any material alteration in the scope of **Work** in the **Contract**.

25.3 The **Contractor** shall be entitled to a price adjustment for **Extra Work** performed pursuant to a written change order. Adjustments to price shall be computed in one or more of the following ways:

25.3.1 By applicable unit prices specified in the **Contract**; and/or

25.3.2 By agreement of a fixed price; and/or

25.3.3 By time and material records; and/or

25.3.4 In any other manner approved by the **CCPO**.

25.4 All payments for change orders are subject to pre-audit by the **Engineering Audit Officer** and may be post-audited by the **Comptroller** and/or the **Agency**.

ARTICLE 26. METHODS OF PAYMENT FOR OVERRUNS AND EXTRA WORK

26.1 **Overrun of Unit Price Item**: An overrun is any quantity of a unit price item which the **Contractor** is directed to provide which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule.

26.1.1 For any unit price item, the **Contractor** will be paid at the unit price bid for any quantity up to one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule. If during the progress of the **Work**, the actual quantity of any unit price item required to complete the **Work** approaches the estimated quantity for that item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the **Work** will exceed the estimated quantity for that item by twenty-five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer**.

26.1.2 If the actual quantity of any unit price item necessary to complete the **Work** will exceed one hundred twenty five (125%) percent of the estimated quantity for that item set forth in the bid schedule, the **City** reserves the right and the **Contractor** agrees to negotiate a new unit price for such item. In no event shall such negotiated new unit price exceed the unit bid price. If the **City** and **Contractor** cannot agree on a new unit price, then the **City** shall order the **Contractor** and the **Contractor** agrees to provide additional quantities of the

item on the basis of time and material records for the actual and reasonable cost as determined under Article 26.2, but in no event at a unit price exceeding the unit price bid.

26.2 Extra Work: For **Extra Work** where payment is by agreement on a fixed price in accordance with Article 25.3.2, the price to be paid for such **Extra Work** shall be based on the fair and reasonable estimated cost of the items set forth below. For **Extra Work** where payment is based on time and material records in accordance with Article 25.3.3, the price to be paid for such **Extra Work** shall be the actual and reasonable cost of the items set forth below, calculated in accordance with the formula specified therein, if any.

- 26.2.1 Necessary materials (including transportation to the Site); plus
- 26.2.2 Necessary direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits; plus
- 26.2.3 Sales and personal property taxes, if any, required to be paid on materials not incorporated into such **Extra Work**; plus
- 26.2.4 Reasonable rental value of **Contractor**-owned (or **Subcontractor**-owned, as applicable), necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per operating hour: $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$. Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by Equipment Watch (the "Green Book"), or seventy-five percent of the monthly prorated rental rates established in the "Rental Rate Blue Book for Construction Equipment" published by Equipment Watch (the "Blue Book") (the applicable Blue Book rate being for rental only without the addition of any operational costs listed in the Blue Book). The reasonable rental value is deemed to be inclusive of all operating costs except for fuel/energy consumption and equipment operator's wages/costs. For multiple shift utilization, reimbursement shall be calculated as follows: first shift shall be seventy-five (75%) percent of such rental rates; second shift shall be sixty (60%) percent of the first shift rate; and third shift shall be forty (40%) percent of the first shift rate. Equipment on standby shall be reimbursed at one-third (1/3) the prorated monthly rental rate. **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment includes equipment from rental companies affiliated with or controlled by the **Contractor** (or **Subcontractor**, as applicable), as determined by the **Commissioner**. In establishing cost reimbursement for non-operating **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment (scaffolding, sheeting systems, road plates, etc.), the **City** may restrict reimbursement to a purchase-salvage/life cycle basis if less than the computed rental costs; plus
- 26.2.5 Necessary installation and dismantling of such plant and equipment, including transportation to and from the Site, if any, provided that, in the case of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) equipment rented from a third party, the cost of installation and dismantling are not allowable if such costs are included in the rental rate; plus
- 26.2.6 Necessary fees charged by governmental entities; plus

26.2.7 Necessary construction-related service fees charged by non-governmental entities, such as landfill tipping fees; plus

26.2.8 Reasonable rental costs of non-Contractor-owned (or non-Subcontractor-owned, as applicable) necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per hour of operation: $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$. In lieu of renting, the City reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 Workers' Compensation Insurance, and any insurance coverage expressly required by the City for the performance of the **Extra Work** which is different than the types of insurance required by Article 22 and Schedule A of the General Conditions. The cost of Workers' Compensation Insurance is subject to applicable payroll limitation caps and shall be based upon the carrier's Manual Rate for such insurance derived from the applicable class Loss Cost ("LC") and carrier's Lost Cost Multiplier ("LCM") approved by the New York State Department of Financial Services, and with the exception of experience rating, rate modifiers as promulgated by the New York Compensation Insurance Rating Board ("NYCIRB"); plus

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

26.2.11 Twelve percent (12%) percent of the total of items in Articles 26.2.1 through 26.2.5 as compensation for overhead, except that no percentage for overhead will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes. Overhead shall include without limitation, all costs and expenses in connection with administration, management superintendence, small tools, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance; plus

26.2.12 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus the items in Article 26.2.11, as compensation for profit, except that no percentage for profit will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes; plus

26.2.13 Five (5%) percent of the total of items in Articles 26.2.6 through 26.2.10 as compensation for overhead and profit.

26.3 Where the **Extra Work** is performed in whole or in part by other than the Contractor's own forces pursuant to Article 26.2, the Contractor shall be paid, subject to pre-audit by the **Engineering Audit Officer**, the cost of such **Work** computed in accordance with Article 26.2 above, plus an additional allowance of five (5%) percent to cover the Contractor's overhead and profit.

26.4 Where a change is ordered, involving both **Extra Work** and omitted or reduced **Contract Work**, the **Contract** price shall be adjusted, subject to pre-audit by the **EAO**, in an amount based on the difference between the cost of such **Extra Work** and of the omitted or reduced **Work**.

26.5 Where the Contractor and the Commissioner can agree upon a fixed price for **Extra Work** in accordance with Article 25.3.2 or another method of payment for **Extra Work** in accordance with Article

25.3.4, or for **Extra Work** ordered in connection with omitted **Work**, such method, subject to pre-audit by the **EAO**, may, at the option of the **Commissioner**, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the **Extra Work** is performed by a **Subcontractor**, the **Contractor** shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over the cost of such **Subcontractor's Work** as computed in accordance with Article 26.2.

ARTICLE 27. RESOLUTION OF DISPUTES

27.1 All disputes between the **City** and the **Contractor** of the kind delineated in this Article 27.1 that arise under, or by virtue of, this **Contract** shall be finally resolved in accordance with the provisions of this Article 27 and the **PPB Rules**. This procedure for resolving all disputes of the kind delineated herein shall be the exclusive means of resolving any such disputes.

27.1.1 This Article 27 shall not apply to disputes concerning matters dealt with in other sections of the **PPB Rules**, or to disputes involving patents, copyrights, trademarks, or trade secrets (as interpreted by the courts of New York State) relating to proprietary rights in computer software.

27.1.2 This Article 27 shall apply only to disputes about the scope of **Work** delineated by the **Contract**, the interpretation of **Contract** documents, the amount to be paid for **Extra Work** or disputed work performed in connection with the **Contract**, the conformity of the **Contractor's Work** to the **Contract**, and the acceptability and quality of the **Contractor's Work**; such disputes arise when the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** makes a determination with which the **Contractor** disagrees.

27.2 All determinations required by this Article 27 shall be made in writing clearly stated, with a reasoned explanation for the determination based on the information and evidence presented to the party making the determination. Failure to make such determination within the time required by this Article 27 shall be deemed a non-determination without prejudice that will allow application to the next level.

27.3 During such time as any dispute is being presented, heard, and considered pursuant to this Article 27, the **Contract** terms shall remain in force and the **Contractor** shall continue to perform **Work** as directed by the **ACCO** or the **Engineer**. Failure of the **Contractor** to continue **Work** as directed shall constitute a waiver by the **Contractor** of its claim.

27.4. Presentation of Disputes to **Commissioner**.

Notice of Dispute and Agency Response. The **Contractor** shall present its dispute in writing ("Notice of Dispute") to the **Commissioner** within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the **Contract**. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the **Contractor** relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the **Contractor** in the dispute was arrived at. Within thirty (30) Days after receipt of the detailed written submission comprising the complete Notice of Dispute, the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** shall submit to the **Commissioner** all materials he or she deems pertinent to the dispute. Following initial submissions to the **Commissioner**, either party may demand of the other the production of any document or other material the demanding party believes may be relevant to the dispute. The requested party shall produce all relevant materials that are not otherwise

protected by a legal privilege recognized by the courts of New York State. Any question of relevancy shall be determined by the **Commissioner** whose decision shall be final. Willful failure of the **Contractor** to produce any requested material whose relevancy the **Contractor** has not disputed, or whose relevancy has been affirmatively determined, shall constitute a waiver by the **Contractor** of its claim.

27.4.1 **Commissioner Inquiry.** The **Commissioner** shall examine the material and may, in his or her discretion, convene an informal conference with the **Contractor**, the **ACCO**, and the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** to resolve the issue by mutual consent prior to reaching a determination. The **Commissioner** may seek such technical or other expertise as he or she shall deem appropriate, including the use of neutral mediators, and require any such additional material from either or both parties as he or she deems fit. The **Commissioner's** ability to render, and the effect of, a decision hereunder shall not be impaired by any negotiations in connection with the dispute presented, whether or not the **Commissioner** participated therein. The **Commissioner** may or, at the request of any party to the dispute, shall compel the participation of any **Other Contractor** with a contract related to the **Work** of this **Contract**, and that **Contractor** shall be bound by the decision of the **Commissioner**. Any **Other Contractor** thus brought into the dispute resolution proceeding shall have the same rights and obligations under this Article 27 as the **Contractor** initiating the dispute.

27.4.2 **Commissioner Determination.** Within thirty (30) **Days** after the receipt of all materials and information, or such longer time as may be agreed to by the parties, the **Commissioner** shall make his or her determination and shall deliver or send a copy of such determination to the **Contractor**, the **ACCO**, and **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner**, as applicable, together with a statement concerning how the decision may be appealed.

27.4.3 **Finality of Commissioner's Decision.** The **Commissioner's** decision shall be final and binding on all parties, unless presented to the Contract Dispute Resolution Board pursuant to this Article 27. The **City** may not take a petition to the Contract Dispute Resolution Board. However, should the **Contractor** take such a petition, the **City** may seek, and the Contract Dispute Resolution Board may render, a determination less favorable to the **Contractor** and more favorable to the **City** than the decision of the **Commissioner**.

27.5 **Presentation of Dispute to the Comptroller.** Before any dispute may be brought by the **Contractor** to the Contract Dispute Resolution Board, the **Contractor** must first present its claim to the **Comptroller** for his or her review, investigation, and possible adjustment.

27.5.1 **Time, Form, and Content of Notice.** Within thirty (30) **Days** of its receipt of a decision by the **Commissioner**, the **Contractor** shall submit to the **Comptroller** and to the **Commissioner** a Notice of Claim regarding its dispute with the **Agency**. The Notice of Claim shall consist of (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written decision of the **Commissioner**; and (iii) a copy of all materials submitted by the **Contractor** to the **Agency**, including the Notice of Dispute. The **Contractor** may not present to the **Comptroller** any material not presented to the **Commissioner**, except at the request of the **Comptroller**.

27.5.2 **Response.** Within thirty (30) **Days** of receipt of the Notice of Claim, the **Agency** shall make available to the **Comptroller** a copy of all material submitted by the **Agency** to the **Commissioner** in connection with the dispute. The **Agency** may not present to the

Comptroller any material not presented to the **Commissioner** except at the request of the **Comptroller**.

27.5.3 Comptroller Investigation. The **Comptroller** may investigate the claim in dispute and, in the course of such investigation, may exercise all powers provided in Sections 7-201 and 7-203 of the Administrative Code. In addition, the **Comptroller** may demand of either party, and such party shall provide, whatever additional material the **Comptroller** deems pertinent to the claim, including original business records of the **Contractor**. Willful failure of the **Contractor** to produce within fifteen (15) **Days** any material requested by the **Comptroller** shall constitute a waiver by the **Contractor** of its claim. The **Comptroller** may also schedule an informal conference to be attended by the **Contractor**, Agency representatives, and any other personnel desired by the **Comptroller**.

27.5.4 Opportunity of Comptroller to Compromise or Adjust Claim. The **Comptroller** shall have forty-five (45) **Days** from his or her receipt of all materials referred to in Article 27.5.3 to investigate the disputed claim. The period for investigation and compromise may be further extended by agreement between the **Contractor** and the **Comptroller**, to a maximum of ninety (90) **Days** from the **Comptroller's** receipt of all materials. The **Contractor** may not present its petition to the Contract Dispute Resolution Board until the period for investigation and compromise delineated in this Article 27.5.4 has expired. In compromising or adjusting any claim hereunder, the **Comptroller** may not revise or disregard the terms of the **Contract** between the parties.

27.6 Contract Dispute Resolution Board. There shall be a Contract Dispute Resolution Board composed of:

27.6.1 The chief administrative law judge of the Office of Administrative Trials and Hearings (OATH) or his/her designated OATH administrative law judge, who shall act as chairperson, and may adopt operational procedures and issue such orders consistent with this Article 27 as may be necessary in the execution of the Contract Dispute Resolution Board's functions, including, but not limited to, granting extensions of time to present or respond to submissions;

27.6.2 The **CCPO** or his/her designee; any designee shall have the requisite background to consider and resolve the merits of the dispute and shall not have participated personally and substantially in the particular matter that is the subject of the dispute or report to anyone who so participated; and

27.6.3 A person with appropriate expertise who is not an employee of the City. This person shall be selected by the presiding administrative law judge from a prequalified panel of individuals, established and administered by OATH with appropriate background to act as decision-makers in a dispute. Such individual may not have a contract or dispute with the City or be an officer or employee of any company or organization that does, or regularly represents persons, companies, or organizations having disputes with the City.

27.7 Petition to the Contract Dispute Resolution Board. In the event the claim has not been settled or adjusted by the **Comptroller** within the period provided in this Article 27, the **Contractor**, within thirty (30) **Days** thereafter, may petition the Contract Dispute Resolution Board to review the **Commissioner's** determination.

27.7.1 Form and Content of Petition by Contractor. The **Contractor** shall present its dispute to the Contract Dispute Resolution Board in the form of a petition, which shall

include (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed, and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written Decision of the **Commissioner**, (iii) copies of all materials submitted by the **Contractor** to the Agency; (iv) a copy of the written decision of the **Comptroller**, if any, and (v) copies of all correspondence with, or written material submitted by the **Contractor**, to the **Comptroller**. The **Contractor** shall concurrently submit four (4) complete sets of the Petition: one set to the City Corporation Counsel (Attn: Commercial and Real Estate Litigation Division) and three (3) sets to the Contract Dispute Resolution Board at OATH's offices with proof of service on the City Corporation Counsel. In addition, the **Contractor** shall submit a copy of the written statement of the substance of the dispute, cited in (i) above, to both the **Commissioner** and the **Comptroller**.

27.7.2 Agency Response. Within thirty (30) Days of its receipt of the Petition by the City Corporation Counsel, the Agency shall respond to the brief written statement of the **Contractor** and make available to the Contract Dispute Resolution Board all material it submitted to the **Commissioner** and **Comptroller**. Three (3) complete copies of the Agency response shall be provided to the Contract Dispute Resolution Board and one to the **Contractor**. Extensions of time for submittal of the Agency response shall be given as necessary upon a showing of good cause or, upon consent of the parties, for an initial period of up to thirty (30) Days.

27.7.3 Further Proceedings. The Contract Dispute Resolution Board shall permit the **Contractor** to present its case by submission of memoranda, briefs, and oral argument. The Contract Dispute Resolution Board shall also permit the Agency to present its case in response to the **Contractor** by submission of memoranda, briefs, and oral argument. If requested by the City Corporation Counsel, the **Comptroller** shall provide reasonable assistance in the preparation of the Agency's case. Neither the **Contractor** nor the Agency may support its case with any documentation or other material that was not considered by the **Comptroller**, unless requested by the Contract Dispute Resolution Board. The Contract Dispute Resolution Board, in its discretion, may seek such technical or other expert advice as it shall deem appropriate and may seek, on its own or upon application of a party, any such additional material from any party as it deems fit. The Contract Dispute Resolution Board, in its discretion, may combine more than one dispute between the parties for concurrent resolution.

27.7.4 Contract Dispute Resolution Board Determination. Within forty-five (45) Days of the conclusion of all written submissions and oral arguments, the Contract Dispute Resolution Board shall render a written decision resolving the dispute. In an unusually complex case, the Contract Dispute Resolution Board may render its decision in a longer period, not to exceed ninety (90) Days, and shall so advise the parties at the commencement of this period. The Contract Dispute Resolution Board's decision must be consistent with the terms of the **Contract**. Decisions of the Contract Dispute Resolution Board shall only resolve matters before the Contract Dispute Resolution Board and shall not have precedential effect with respect to matters not before the Contract Dispute Resolution Board.

27.7.5 Notification of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board shall send a copy of its decision to the **Contractor**, the **ACCO**, the Engineer, the **Comptroller**, the City Corporation Counsel, the **CCPO**, and the **PPB**. A decision in favor of the **Contractor** shall be subject to the prompt payment provisions of the **PPB** Rules. The Required Payment Date shall be thirty (30) Days after the date the parties are formally notified of the Contract Dispute Resolution Board's decision.

27.7.6 Finality of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board's decision shall be final and binding on all parties. Any party may seek review of the Contract Dispute Resolution Board's decision solely in the form of a challenge, filed within four (4) months of the date of the Contract Dispute Resolution Board's decision, in a court of competent jurisdiction of the State of New York, County of New York pursuant to Article 78 of the Civil Practice Law and Rules. Such review by the court shall be limited to the question of whether or not the Contract Dispute Resolution Board's decision was made in violation of lawful procedure, was affected by an error of Law, or was arbitrary and capricious or an abuse of discretion. No evidence or information shall be introduced or relied upon in such proceeding that was not presented to the Contract Dispute Resolution Board in accordance with this Article 27.

27.8 Any termination, cancellation, or alleged breach of the Contract prior to or during the pendency of any proceedings pursuant to this Article 27 shall not affect or impair the ability of the Commissioner or Contract Dispute Resolution Board to make a binding and final decision pursuant to this Article 27.

ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK OR WORK ON A TIME & MATERIALS BASIS

28.1 While the Contractor or any of its Subcontractors is performing Work on a time and material basis or Extra Work on a time and material basis ordered by the Commissioner under Article 25, or where the Contractor believes that it or any of its Subcontractors is performing Extra Work but a final determination by Agency has not been made, or the Contractor or any of its Subcontractors is performing disputed Work (whether on or off the Site), or complying with a determination or order under protest in accordance with Articles 11, 27, and 30, in each such case the Contractor shall furnish the Resident Engineer daily with three (3) copies of written statements signed by the Contractor's representative at the Site showing:

28.1.1 The name, trade, and number of each worker employed on such Work or engaged in complying with such determination or order, the number of hours employed, and the character of the Work each is doing; and

28.1.2 The nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such Work or compliance with such determination or order, and from whom purchased or rented.

28.2 A copy of such statement will be countersigned by the Resident Engineer, noting thereon any items not agreed to or questioned, and will be returned to the Contractor within two (2) Days after submission.

28.3 The Contractor and its Subcontractors, when required by the Commissioner, or the Comptroller, shall also produce for inspection, at the office of the Contractor or Subcontractor, any and all of its books, bid documents, financial statements, vouchers, records, daily job diaries and reports, and cancelled checks, and any other documents relating to showing the nature and quantity of the labor, materials, plant and equipment actually used in the performance of such Work, or in complying with such determination or order, and the amounts expended therefor, and shall permit the Commissioner and the Comptroller to make such extracts therefrom, or copies thereof, as they or either of them may desire.

28.4 In connection with the examination provided for herein, the Commissioner, upon demand therefor, will produce for inspection by the Contractor such records as the Agency may have with

respect to such **Extra Work** or disputed **Work** performed under protest pursuant to order of the **Commissioner**, except those records and reports which may have been prepared for the purpose of determining the accuracy and validity of the **Contractor's** claim.

28.5 Failure to comply strictly with these requirements shall constitute a waiver of any claim for extra compensation or damages on account of the performance of such **Work** or compliance with such determination or order.

ARTICLE 29. OMITTED WORK

29.1 If any **Contract Work** in a lump sum **Contract**, or if any part of a lump sum item in a unit price, lump sum, or percentage-bid **Contract** is omitted by the **Commissioner** pursuant to Article 33, the **Contract** price, subject to audit by the EAO, shall be reduced by a pro rata portion of the lump sum bid amount based upon the percent of **Work** omitted subject to Article 29.4. For the purpose of determining the pro rata portion of the lump sum bid amount, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be the determining factor.

29.2 If the whole of a lump sum item or units of any other item is so omitted by the **Commissioner** in a unit price, lump sum, or percentage-bid **Contract**, then no payment will be made therefor except as provided in Article 29.4.

29.3 For units that have been ordered but are only partially completed, the unit price shall be reduced by a pro rata portion of the unit price bid based upon the percentage of **Work** omitted subject to Article 29.4.

29.4 In the event the **Contractor**, with respect to any omitted **Work**, has purchased any non-cancelable material and/or equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated into the **Work**, the **Contractor** shall be paid for such material and/or equipment in accordance with Article 64.2.1(b); provided, however, such payment is contingent upon the **Contractor's** delivery of such material and/or equipment in acceptable condition to a location designated by the **City**.

29.5 The **Contractor** agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted **Work**.

ARTICLE 30. NOTICE AND DOCUMENTATION OF COSTS AND DAMAGES; PRODUCTION OF FINANCIAL RECORDS

30.1 If the **Contractor** shall claim to be sustaining damages by reason of any act or omission of the **City** or its agents, it shall submit to the **Commissioner** within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter for as long as such damages are incurred, verified statements of the details and the amounts of such damages, together with documentary evidence of such damages. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. Failure of the **Commissioner** to respond in writing to a written request for additional time within thirty (30) **Days** shall be deemed a denial of the request. On failure of the **Contractor** to strictly comply with the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action or dispute resolution procedure arising under or by reason of this **Contract** shall not be different from or in excess of the statements and documentation made pursuant to this Article 30.

30.2 In addition to the foregoing statements, the **Contractor** shall, upon notice from the **Commissioner**, produce for examination at the **Contractor's** office, by the **Engineer, Architect or Project Manager**, all of its books of account, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**, and submit itself and persons in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.3 In addition to the statements required under Article 28 and this Article 30, the **Contractor** and/or its **Subcontractor** shall, within thirty (30) **Days** upon notice from the **Commissioner** or **Comptroller**, produce for examination at the **Contractor's** and/or **Subcontractor's** office, by a representative of either the **Commissioner** or **Comptroller**, all of its books of account, bid documents, financial statements, accountant workpapers, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**. Further, the **Contractor** and/or its **Subcontractor** shall submit any person in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.4 Unless the information and examination required under Article 30.3 is provided by the **Contractor** and/or its **Subcontractor** upon thirty (30) **Days'** notice from the **Commissioner** or **Comptroller**, or upon the **Commissioner's** or **Comptroller's** written authorization to extend the time to comply, the **City** shall be released from all claims arising under, relating to or by reason of this **Contract**, except for sums certified by the **Commissioner** to be due under the provisions of this **Contract**. It is further stipulated and agreed that no person has the power to waive any of the foregoing provisions and that in any action or dispute resolution procedure against the **City** to recover any sum in excess of the sums certified by the **Commissioner** to be due under or by reason of this **Contract**, the **Contractor** must allege in its complaint and prove, at trial or during such dispute resolution procedure, compliance with the provisions of this Article 30.

30.5 In addition, after the commencement of any action or dispute resolution procedure by the **Contractor** arising under or by reason of this **Contract**, the **City** shall have the right to require the **Contractor** to produce for examination under oath, up until the trial of the action or hearing before the **Contract Dispute Resolution Board**, the books and documents described in Article 30.3 and submit itself and all persons in its employ for examination under oath. If this Article 30 is not complied with as required, then the **Contractor** hereby consents to the dismissal of the action or dispute resolution procedure.

CHAPTER VII
POWERS OF THE RESIDENT ENGINEER,
THE ENGINEER OR ARCHITECT AND THE COMMISSIONER

ARTICLE 31. THE RESIDENT ENGINEER

31.1 The **Resident Engineer** shall have the power to inspect, supervise, and control the performance of the **Work**, subject to review by the **Commissioner**. The **Resident Engineer** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 32. THE ENGINEER OR ARCHITECT OR PROJECT MANAGER

32.1 The **Engineer** or **Architect** or **Project Manager**, in addition to those matters elsewhere herein delegated to the **Engineer** and expressly made subject to his/her determination, direction or approval, shall have the power, subject to review by the **Commissioner**:

32.1.1 To determine the amount, quality, and location of the **Work** to be paid for hereunder; and

32.1.2 To determine all questions in relation to the **Work**, to interpret the **Contract Drawings, Specifications, and Addenda**, and to resolve all patent inconsistencies or ambiguities therein; and

32.1.3 To determine how the **Work** of this **Contract** shall be coordinated with **Work** of **Other Contractors** engaged simultaneously on this **Project**, including the power to suspend any part of the **Work**, but not the whole thereof; and

32.1.4 To make minor changes in the **Work** as he/she deems necessary, provided such changes do not result in a net change in the cost to the **City** or to the **Contractor** of the **Work** to be done under the **Contract**; and

32.1.5 To amplify the **Contract Drawings**, add explanatory information and furnish additional **Specifications** and drawings, consistent with this **Contract**.

32.2 The foregoing enumeration shall not imply any limitation upon the power of the **Engineer** or **Architect** or **Project Manager**, for it is the intent of this **Contract** that all of the **Work** shall generally be subject to his/her determination, direction, and approval, except where the determination, direction or approval of someone other than the **Engineer** or **Architect** or **Project Manager** is expressly called for herein.

32.3 The **Engineer** or **Architect** or **Project Manager** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 33. THE COMMISSIONER

33.1 The **Commissioner**, in addition to those matters elsewhere herein expressly made subject to his/her determination, direction or approval, shall have the power:

33.1.1 To review and make determinations on any and all questions in relation to this **Contract** and its performance; and

33.1.2 To modify or change this **Contract** so as to require the performance of **Extra Work** (subject, however, to the limitations specified in Article 25) or the omission of **Contract Work**; and

33.1.3 To suspend the whole or any part of the **Work** whenever in his/her judgment such suspension is required:

33.1.3(a) In the interest of the **City** generally; or

33.1.3(b) To coordinate the **Work** of the various contractors engaged on this **Project** pursuant to the provisions of Article 12; or

33.1.3(c) To expedite the completion of the entire **Project** even though the completion of this particular **Contract** may thereby be delayed.

ARTICLE 34. NO ESTOPPEL

34.1 Neither the **City** nor any **Agency**, official, agent or employee thereof, shall be bound, precluded or estopped by any determination, decision, approval, order, letter, payment or certificate made or given under or in connection with this **Contract** by the **City**, the **Commissioner**, the **Engineer**, the **Resident Engineer**, or any other official, agent or employee of the **City**, either before or after the final completion and acceptance of the **Work** and payment therefor:

34.1.1 From showing the true and correct classification, amount, quality or character of the **Work** actually done; or that any such determination, decision, order, letter, payment or certificate was untrue, incorrect or improperly made in any particular, or that the **Work**, or any part thereof, does not in fact conform to the requirements of this **Contract**; and

34.1.2 From demanding and recovering from the **Contractor** any overpayment made to it, or such damages as the **City** may sustain by reason of the **Contractor's** failure to perform each and every part of its **Contract**.

CHAPTER VIII LABOR PROVISIONS

ARTICLE 35. EMPLOYEES

35.1 The **Contractor** and its **Subcontractors** shall not employ on the **Work**:

35.1.1 Anyone who is not competent, faithful and skilled in the **Work** for which he/she shall be employed; and whenever the **Commissioner** shall inform the **Contractor**, in writing, that any employee is, in his/her opinion, incompetent, unfaithful or disobedient, that employee shall be discharged from the **Work** forthwith, and shall not again be employed upon it; or

35.1.2 Any labor, materials or means whose employment, or utilization during the course of this **Contract**, may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of **Work** or similar troubles by workers employed by the **Contractor** or its **Subcontractors**, or by any of the trades working in or about the buildings and premises where **Work** is being performed under this **Contract**, or by **Other Contractors** or their **Subcontractors** pursuant to other contracts, or on any other building or premises owned or operated by the **City**, its **Agencies**, departments, boards or authorities. Any violation by the **Contractor** of this requirement may, upon certification of the **Commissioner**, be considered as proper and sufficient cause for declaring the **Contractor** to be in default, and for the **City** to take action against it as set forth in Chapter X of this **Contract**, or such other article of this **Contract** as the **Commissioner** may deem proper; or

35.1.3 In accordance with Section 220.3-e of the Labor Law of the State of New York (hereinafter "Labor Law"), the **Contractor** and its **Subcontractors** shall not employ on the **Work** any apprentice, unless he/she is a registered individual, under a bona fide program

registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the **Contractor** as to its work force on any job under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the wage rate determined by the **Comptroller** of the **City** for the classification of **Work** actually performed. The **Contractor** or **Subcontractor** will be required to furnish written evidence of the registration of its program and apprentices as well as all the appropriate ratios and wage rates, for the area of the construction prior to using any apprentices on the **Contract Work**.

35.2 If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand (\$250,000) dollars, all laborers, workers, and mechanics employed in the performance of the **Contract** on the public work site, either by the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by the **Contract**, shall be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

35.3 In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the Administrative Code, respectively,

35.3.1 The **Contractor** shall not take an adverse personnel action with respect to an officer or employee in retaliation for such officer or employee making a report of information concerning conduct which such officer or employee knows or reasonably believes to involve corruption, criminal activity, conflict of interest, gross mismanagement or abuse of authority by any officer or employee relating to this **Contract** to (a) the Commissioner of the Department of Investigation, (b) a member of the New York City Council, the Public Advocate, or the **Comptroller**, or (c) the **CCPO**, **ACCO**, **Agency** head, or **Commissioner**.

35.3.2 If any of the **Contractor's** officers or employees believes that he or she has been the subject of an adverse personnel action in violation of Article 35.3.1, he or she shall be entitled to bring a cause of action against the **Contractor** to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (a) an injunction to restrain continued retaliation, (b) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (c) reinstatement of full fringe benefits and seniority rights, (d) payment of two times back pay, plus interest, and (e) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

35.3.3 The **Contractor** shall post a notice provided by the **City** in a prominent and accessible place on any site where work pursuant to the **Contract** is performed that contains information about:

35.3.3(a) how its employees can report to the New York City Department of Investigation allegations of fraud, false claims, criminality or corruption arising out of or in connection with the **Contract**; and

35.3.3(b) the rights and remedies afforded to its employees under Administrative Code sections 7-805 (the New York City False Claims Act) and 12-113 (the Whistleblower Protection Expansion Act) for lawful acts taken in connection with the reporting of allegations of fraud, false claims, criminality or corruption in connection with the **Contract**.

35.3.4 For the purposes of this Article 35.3, "adverse personnel action" includes dismissal, demotion, suspension, disciplinary action, negative performance evaluation, any action resulting in loss of staff, office space, equipment or other benefit, failure to appoint, failure to promote, or any transfer or assignment or failure to transfer or assign against the wishes of the affected officer or employee.

35.3.5 This Article 35.3 is applicable to all of the **Contractor's Subcontractors** having subcontracts with a value in excess of \$100,000; accordingly, the **Contractor** shall include this rider in all subcontracts with a value in excess of \$100,000.

35.4 Article 35.3 is not applicable to this **Contract** if it is valued at \$100,000 or less. Articles 35.3.1, 35.3.2, 35.3.4, and 35.3.5 are not applicable to this **Contract** if it was solicited pursuant to a finding of an emergency.

ARTICLE 36. NO DISCRIMINATION

36.1 The **Contractor** specifically agrees, as required by Labor Law Section 220-e, as amended, that:

36.1.1 In the hiring of employees for the performance of **Work** under this **Contract** or any subcontract hereunder, neither the **Contractor**, **Subcontractor**, nor any person acting on behalf of such **Contractor** or **Subcontractor**, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the **Work** to which the employment relates;

36.1.2 Neither the **Contractor**, **Subcontractor**, nor any person on its behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of **Work** under this **Contract** on account of race, creed, color or national origin;

36.1.3 There may be deducted from the amount payable to the **Contractor** by the **City** under this **Contract** a penalty of fifty (\$50.00) dollars for each person for each **Day** during which such person was discriminated against or intimidated in violation of the provisions of this **Contract**; and

36.1.4 This **Contract** may be cancelled or terminated by the **City** and all moneys due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this Article 36.

36.1.5 This Article 36 covers all construction, alteration and repair of any public building or public work occurring in the State of New York and the manufacture, sale, and distribution of materials, equipment, and supplies to the extent that such operations are performed within the State of New York pursuant to this **Contract**.

36.2 The **Contractor** specifically agrees, as required by Section 6-108 of the Administrative Code, as amended, that:

36.2.1 It shall be unlawful for any person engaged in the construction, alteration or repair of buildings or engaged in the construction or repair of streets or highways pursuant to a **Contract** with the **City** or engaged in the manufacture, sale or distribution of materials, equipment or supplies pursuant to a **Contract** with the **City** to refuse to employ or to refuse to continue in any employment any person on account of the race, color or creed of such person.

36.2.2 It shall be unlawful for any person or any servant, agent or employee of any person, described in Article 36.1.2, to ask, indicate or transmit, orally or in writing, directly or indirectly, the race, color or creed or religious affiliation of any person employed or seeking employment from such person, firm or corporation.

36.2.3 Breach of the foregoing provisions shall be deemed a violation of a material provision of this **Contract**.

36.2.4 Any person, or the employee, manager or owner of or officer of such firm or corporation who shall violate any of the provisions of this Article 36.2 shall, upon conviction thereof, be punished by a fine of not more than one hundred (\$100.00) dollars or by imprisonment for not more than thirty (30) **Days**, or both.

36.3 This **Contract** is subject to the requirements of Executive Order No. 50 (1980) ("E.O. 50"), as revised, and the rules and regulations promulgated thereunder. No contract will be awarded unless and until these requirements have been complied with in their entirety. By signing this **Contract**, the **Contractor** agrees that it:

36.3.1 Will not engage in any unlawful discrimination against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, marital status or sexual orientation with respect to all employment decisions including, but not limited to, recruitment, hiring, upgrading, demotion, downgrading, transfer, training, rates of pay or other forms of compensation, layoff, termination, and all other terms and conditions of employment; and

36.3.2 Will not engage in any unlawful discrimination in the selection of **Subcontractors** on the basis of the owner's race, color, creed, national origin, sex, age, disability, marital status or sexual orientation; and

36.3.3 Will state in all solicitations or advertisements for employees placed by or on behalf of the **Contractor** that all qualified applicants will receive consideration for employment without unlawful discrimination based on race, creed, color, national origin, sex, age, citizens status, disability, marital status, sexual orientation, or that it is an equal employment opportunity employer; and

36.3.4 Will send to each labor organization or representative of workers with which it has a collective bargaining agreement or other contract or memorandum of understanding, written notification of its equal employment opportunity commitments under E.O. 50 and the rules and regulations promulgated thereunder; and

36.3.5 Will furnish, before the award of the **Contract**, all information and reports, including an employment report, that are required by E.O. 50, the rules and regulations promulgated thereunder, and orders of the **City Department of Business Services, Division of Labor Services (DLS)** and will permit access to its books, records, and accounts by the **DLS** for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

36.4 The **Contractor** understands that in the event of its noncompliance with the nondiscrimination clauses of this **Contract** or with any of such rules, regulations, or orders, such noncompliance shall constitute a material breach of this **Contract** and noncompliance with E.O. 50 and the rules and regulations promulgated thereunder. After a hearing held pursuant to the rules of the **DLS**, the Director of the **DLS** may direct the **Commissioner** to impose any or all of the following sanctions:

36.4.1 Disapproval of the **Contractor**; and/or

36.4.2 Suspension or termination of the **Contract**; and/or

36.4.3 Declaring the **Contractor** in default; and/or

36.4.4 In lieu of any of the foregoing sanctions, the Director of the **DLS** may impose an employment program.

In addition to any actions taken under this **Contract**, failure to comply with E.O. 50 and the rules and regulations promulgated thereunder, in one or more instances, may result in a **City Agency** declaring the **Contractor** to be non-responsible in future procurements. The **Contractor** further agrees that it will refrain from entering into any **Contract** or **Contract** modification subject to E.O. 50 and the rules and regulations promulgated thereunder with a **Subcontractor** who is not in compliance with the requirements of E.O. 50 and the rules and regulations promulgated thereunder.

36.5 The **Contractor** specifically agrees, as required by Section 6-123 of the Administrative Code, that:

36.5.1 The **Contractor** will not engage in any unlawful discriminatory practice in violation of Title 8 of the Administrative Code; and

36.5.2 Any failure to comply with this Article 36.5 may subject the **Contractor** to the remedies set forth in Section 6-123 of the Administrative Code, including, where appropriate, sanctions such as withholding of payment, imposition of an employment program, finding the **Contractor** to be in default, cancellation of the **Contract**, or any other sanction or remedy provided by **Law** or **Contract**.

ARTICLE 37. LABOR LAW REQUIREMENTS

37.1 The **Contractor** shall strictly comply with all applicable provisions of the Labor Law, as amended. Such compliance is a material term of this **Contract**.

37.2 The **Contractor** specifically agrees, as required by Labor Law Sections 220 and 220-d, as amended, that:

37.2.1 **Hours of Work:** No laborer, worker, or mechanic in the employ of the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by this **Contract** shall be permitted or required to work more than eight (8) hours in any one (1) **Day**, or more than five (5) **Days** in any one (1) week, except as provided in the Labor Law and in cases of extraordinary emergency including fire, flood, or danger to life or property, or in the case of national emergency when so proclaimed by the President of the United States of America.

37.2.2 In situations in which there are not sufficient laborers, workers, and mechanics who may be employed to carry on expeditiously the **Work** contemplated by this **Contract** as a result of such restrictions upon the number of hours and **Days** of labor, and the immediate commencement or prosecution or completion without undue delay of the **Work** is necessary for the preservation of the **Site** and/or for the protection of the life and limb of the persons using the same, such laborers, workers, and mechanics shall be permitted or required to

work more than eight (8) hours in any one (1) **Day**; or five (5) **Days** in any one (1) week; provided, however, that upon application of any **Contractor**, the **Commissioner** shall have first certified to the Commissioner of Labor of the State of New York (hereinafter "**Commissioner of Labor**") that such public **Work** is of an important nature and that a delay in carrying it to completion would result in serious disadvantage to the public; and provided, further, that such **Commissioner of Labor** shall have determined that such an emergency does in fact exist as provided in Labor Law Section 220.2.

37.2.3 Failure of the **Commissioner** to make such a certification to the **Commissioner of Labor** shall not entitle the **Contractor** to damages for delay or for any cause whatsoever.

37.2.4 Prevailing Rate of Wages: The wages to be paid for a legal day's **Work** to laborers, workers, or mechanics employed upon the **Work** contemplated by this **Contract** or upon any materials to be used thereon shall not be less than the "prevailing rate of wage" as defined in Labor Law Section 220, and as fixed by the **Comptroller** in the attached Schedule of Wage Rates and in updated schedules thereof. The prevailing wage rates and supplemental benefits to be paid are those in effect at the time the **Work** is being performed.

37.2.5 Requests for interpretation or correction in the Information for Bidders includes all requests for clarification of the classification of trades to be employed in the performance of the **Work** under this **Contract**. In the event that a trade not listed in the **Contract** is in fact employed during the performance of this **Contract**, the **Contractor** shall be required to obtain from the **Agency** the prevailing wage rates and supplementary benefits for the trades used and to complete the performance of this **Contract** at the price at which the **Contract** was awarded.

37.2.6 Minimum Wages: Except for employees whose wage is required to be fixed pursuant to Labor Law Section 220, all persons employed by the **Contractor** and any **Subcontractor** in the manufacture or furnishing of the supplies, materials, or equipment, or the furnishing of work, labor, or services, used in the performance of this **Contract**, shall be paid, without subsequent deduction or rebate unless expressly authorized by **Law**, not less than the sum mandated by **Law**.

37.3 Working Conditions: No part of the **Work**, labor or services shall be performed or rendered by the **Contractor** in any plants, factories, buildings or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of this **Contract**. Compliance with the safety, sanitary, and factory inspection **Laws** of the state in which the **Work** is to be performed shall be prima facie evidence of compliance with this Article 37.3.

37.4 Prevailing Wage Enforcement: The **Contractor** agrees to pay for all costs incurred by the **City** in enforcing prevailing wage requirements, including the cost of any investigation conducted by or on behalf of the **Agency** or the **Comptroller**, where the **City** discovers a failure to comply with any of the requirements of this Article 37 by the **Contractor** or its **Subcontractor(s)**. The **Contractor** also agrees that, should it fail or refuse to pay for any such investigation, the **Agency** is hereby authorized to deduct from a **Contractor's** account an amount equal to the cost of such investigation.

37.4.1 The Labor Law Section 220 and Section 220-d, as amended, provide that this **Contract** shall be forfeited and no sum paid for any **Work** done hereunder on a second conviction for willfully paying less than:

37.4.1(a) The stipulated prevailing wage scale as provided in Labor Law section 220, as amended, or

37.4.1(b) The stipulated minimum hourly wage scale as provided in Labor Law section 220-d, as amended.

37.4.2 For any breach or violation of either working conditions (Article 37.3) or minimum wages (Article 37.2.6) provisions, the party responsible therefor shall be liable to the City for liquidated damages, which may be withheld from any amounts due on any contracts with the City of such party responsible, or may be recovered in actions brought by the City Corporation Counsel in the name of the City, in addition to damages for any other breach of this Contract, for a sum equal to the amount of any underpayment of wages due to any employee engaged in the performance of this Contract. In addition, the Commissioner shall have the right to cancel contracts and enter into other contracts for the completion of the original contract, with or without public letting, and the original Contractor shall be liable for any additional cost. All sums withheld or recovered as deductions, rebates, refunds, or underpayment of wages hereunder, shall be held in a special deposit account and shall be paid without interest, on order of the Comptroller, directly to the employees who have been paid less than minimum rates of pay as set forth herein and on whose account such sums were withheld or recovered, provided that no claims by employees for such payments shall be entertained unless made within two (2) years from the date of actual notice to the Contractor of the withholding or recovery of such sums by the City.

37.4.3 A determination by the Comptroller that a Contractor and/or its Subcontractor willfully violated Labor Law Section 220 will be forwarded to the City's five District Attorneys for review.

37.4.4 The Contractor's or Subcontractor's noncompliance with this Article 37.4 and Labor Law Section 220 may result in an unsatisfactory performance evaluation and the Comptroller may also find and determine that the Contractor or Subcontractor willfully violated the New York Labor Law.

37.4.4(a) An unsatisfactory performance evaluation for noncompliance with this Article 37.4 may result in a determination that the Contractor is a non-responsible bidder on subsequent procurements with the City and thus a rejection of a future award of a contract with the City, as well as any other sanctions provided for by Law.

37.4.4(b) Labor Law Section 220-b, as amended, provides that when two (2) final determinations have been rendered against a Contractor or Subcontractor within any consecutive six (6) year period determining that such Contractor or Subcontractor has willfully failed to pay the prevailing rate of wages or to provide supplements in accordance with the Labor Law and this Article 37.4, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public works projects are rendered simultaneously, such Contractor or Subcontractor shall be ineligible to submit a bid on or be awarded any public works contract with the City for a period of five (5) years from the second final determination. If the final determination involves the falsification of payroll records or the kickback of wages or supplements, the Contractor or Subcontractor shall be ineligible to submit a bid on or be awarded any public works contract with the City for a period of five (5) years from the first final determination.

37.4.4(c) Labor Law Section 220, as amended, provides that the Contractor or Subcontractor found to have violated this Article 37.4 may be directed to make payment of wages or supplements including interest found to be due, and the Contractor or Subcontractor may be directed to make payment of a further sum as

a civil penalty in an amount not exceeding twenty-five (25%) percent of the total amount found to be due.

37.5 The **Contractor** and its **Subcontractors** shall within ten (10) **Days** after mailing of a Notice of Award or written order, post in prominent and conspicuous places in each and every plant, factory, building, and structure where employees of the **Contractor** and its **Subcontractors** engaged in the performance of this **Contract** are employed, notices furnished by the **City**, in relation to prevailing wages and supplements, minimum wages, and other stipulations contained in Sections 220 and 220-h of the Labor Law, and the **Contractor** and its **Subcontractors** shall continue to keep such notices posted in such prominent and conspicuous places until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services required to be furnished or rendered under this **Contract**.

37.6 The **Contractor** shall strictly comply with all of the provisions of Articles 37.6.1 through 37.6.5, and provide for all workers, laborers or mechanics in its employ, the following:

37.6.1 **Notices Posted At Site:** Post, in a location designated by the **City**, schedules of prevailing wages and supplements for this **Project**, a copy of all re-determinations of such schedules for the **Project**, the **Workers' Compensation Law Section 51** notice, all other notices required by **Law** to be posted at the **Site**, the **City** notice that this **Project** is a public works project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the **City** directs the **Contractor** to post. The **Contractor** shall provide a surface for such notices which is satisfactory to the **City**. The **Contractor** shall maintain and keep current such notices in a legible manner and shall replace any notice or schedule which is damaged, defaced, illegible or removed for any reason. The **Contractor** shall post such notices before commencing any **Work** on the **Site** and shall maintain such notices until all **Work** on the **Site** is complete; and

37.6.2 **Daily Site Sign-in Sheets:** Maintain daily **Site** sign-in sheets, and require that **Subcontractors** maintain daily **Site** sign-in sheets for its employees, which include blank spaces for an employee's name to be both printed and signed, job title, date started and Social Security number, the time the employee began work and the time the employee left work, until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services to be furnished or rendered under this **Contract** unless exception is granted by the **Comptroller** upon application by the **Agency**. In the alternative, subject to the approval of the **CCPO**, the **Contractor** and **Subcontractor** may maintain an electronic or biometric sign-in system, which provides the information required by this Article 37.6.2; and

37.6.3 **Individual Employee Information Notices:** Distribute a notice to each worker, laborer or mechanic employed under this **Contract**, in a form provided by the **Agency**, that this **Project** is a public works project on which each worker, laborer or mechanic is entitled to receive the prevailing rate of wages and supplements for the occupation at which he or she is working. If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand (\$250,000) dollars, such notice shall also include a statement that each worker, laborer or mechanic must be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration. Such notice shall be distributed to each worker before he or she starts performing any **Work** of this **Contract** and with the first paycheck after July first of each year. "Worker, laborer or mechanic" includes employees of the **Contractor** and all **Subcontractors** and all employees of suppliers entering the **Site**. At the time of distribution, the **Contractor** shall have each worker, laborer or mechanic sign a statement, in a form provided by the **Agency**, certifying that the worker has received the notice required by this

Article 37.6.3, which signed statement shall be maintained with the payroll records required by this **Contract**; and

37.6.3(a) The **Contractor** and each **Subcontractor** shall notify each worker, laborer or mechanic employed under this **Contract** in writing of the prevailing rate of wages for their particular job classification. Such notification shall be given to every worker, laborer, and mechanic on their first pay stub and with every pay stub thereafter; and

37.6.4 **Site Laminated Identification Badges:** The **Contractor** shall provide laminated identification badges which include a photograph of the worker's, laborer's or mechanic's face and indicate the worker's, laborer's or mechanic's name, trade, employer's name, and employment starting date (month/day/year). Further, the **Contractor** shall require as a condition of employment on the **Site**, that each and every worker, laborer or mechanic wear the laminated identification badge at all times and that it may be seen by any representative of the **City**. The **Commissioner** may grant a written waiver from the requirement that the laminated identification badge include a photograph if the **Contractor** demonstrates that the identity of an individual wearing a laminated identification badge can be easily verified by another method; and

37.6.5 **Language Other Than English Used On Site:** Provide the **ACCO** notice when three (3) or more employees (worker and/or laborer and/or mechanic) on the **Site**, at any time, speak a language other than English. The **ACCO** will then provide the **Contractor** the notices described in Article 37.6.1 in that language or languages as may be required. The **Contractor** is responsible for all distributions under this Article 37; and

37.6.6 **Provision of Records:** The **Contractor** and **Subcontractor(s)** shall produce within five (5) **Days** on the **Site** of the **Work** and upon a written order of the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, or the **Comptroller**, such records as are required to be kept by this Article 37.6; and

37.6.7 The **Contractor** and **Subcontractor(s)** shall pay employees by check or direct deposit. If this **Contract** is for an amount greater than one million (\$1,000,000) dollars, checks issued by the **Contractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**). For any subcontract for an amount greater than seven hundred fifty thousand (\$750,000) dollars, checks issued by a **Subcontractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**); and

37.6.8 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 37.6.1 through 37.6.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

37.7 The **Contractor** and its **Subcontractors** shall keep such employment and payroll records as are required by Section 220 of the Labor Law. The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of this Article 37.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

37.8 At the time the **Contractor** makes application for each partial payment and for final payment, the **Contractor** shall submit to the **Commissioner** a written payroll certification, in the form provided by this **Contract**, of compliance with the prevailing wage, minimum wage, and other provisions and stipulations required by Labor Law Section 220 and of compliance with the training requirements of

Labor Law Section 220-h set forth in Article 35.2. This certification of compliance shall be a condition precedent to payment and no payment shall be made to the **Contractor** unless and until each such certification shall have been submitted to and received by the **Commissioner**.

37.9 This **Contract** is executed by the **Contractor** with the express warranty and representation that the **Contractor** is not disqualified under the provisions of Section 220 of the Labor Law from the award of the **Contract**.

37.10 Any breach or violation of any of the foregoing shall be deemed a breach or violation of a material provision of this **Contract**, and grounds for cancellation thereof by the **City**.

ARTICLE 38. PAYROLL REPORTS

38.1 The **Contractor** and its **Subcontractor(s)** shall maintain on the **Site** during the performance of the **Work** the original payrolls or transcripts thereof which the **Contractor** and its **Subcontractor(s)** are required to maintain and shall submit such original payrolls or transcripts, subscribed and affirmed by it as true, within thirty (30) **Days** after issuance of its first payroll, and every thirty (30) **Days** thereafter, pursuant to Labor Law Section 220(3-a)(a)(iii). The **Contractor** and **Subcontractor(s)** shall submit such original payrolls or transcripts along with each and every payment requisition. If payment requisitions are not submitted at least once a month, the **Contractor** and its **Subcontractor(s)** shall submit original payrolls and transcripts both along with its payment requisitions and independently of its payment requisitions.

38.2 The **Contractor** shall maintain payrolls or transcripts thereof for six (6) years from the date of completion of the **Work** on this **Contract**. If such payrolls and transcripts are maintained outside of New York City after the completion of the **Work** and their production is required pursuant to this Article 38, the **Contractor** shall produce such records in New York City upon request by the **City**.

38.3 The **Contractor** and **Subcontractor(s)** shall comply with any written order, direction, or request made by the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, the **Agency Labor Law Investigator(s)**, or the **Comptroller**, to provide to the requesting party any of the following information and/or records within five (5) **Days** of such written order, direction, or request:

38.3.1 Such original payrolls or transcripts thereof subscribed and affirmed by it as true and the statements signed by each worker pursuant to this Chapter VIII; and/or

38.3.2 Attendance sheets for each **Day** on which any employee of the **Contractor** and/or any of the **Subcontractor(s)** performed **Work** on the **Site**, which attendance sheet shall be in a form acceptable to the **Agency** and shall provide information acceptable to the **Agency** to identify each such employee; and/or

38.3.3 Any other information to satisfy the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, the **Agency Labor Law Investigator(s)** or the **Comptroller**, that this Chapter VIII and the Labor Law, as to the hours of employment and prevailing rates of wages and/or supplemental benefits, are being observed.

38.4 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 38.1 and/or 38.2 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

ARTICLE 39. DUST HAZARDS

39.1 Should a harmful dust hazard be created in performing the **Work** of this **Contract**, for the elimination of which appliances or methods have been approved by the Board of Standards and Appeals of the City of New York, such appliances and methods shall be installed, maintained, and effectively operated during the continuance of such harmful dust hazard. Failure to comply with this provision after notice shall make this **Contract** voidable at the sole discretion of the City.

CHAPTER IX PARTIAL AND FINAL PAYMENTS

ARTICLE 40. CONTRACT PRICE

40.1 The City shall pay, and the Contractor agrees to accept, in full consideration for the Contractor's performance of the **Work** subject to the terms and conditions hereof, the lump sum price or unit prices for which this **Contract** was awarded, plus the amount required to be paid for any **Extra Work** ordered by the **Commissioner** under Article 25, less credit for any **Work** omitted pursuant to Article 29.

ARTICLE 41. BID BREAKDOWN ON LUMP SUM

41.1 Within fifteen (15) **Days** after the commencement date specified in the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Resident Engineer**, the Contractor shall submit to the **Resident Engineer** a breakdown of its bid price, or of lump sums bid for items of the **Contract**, showing the various operations to be performed under the **Contract**, as directed in the progress schedule required under Article 9, and the value of each of such operations, the total of such items to equal the lump sum price bid. Said breakdown must be approved in writing by the **Resident Engineer**.

41.2 No partial payment will be approved until the Contractor submits a bid breakdown that is acceptable to the **Resident Engineer**.

41.3 The Contractor shall also submit such other information relating to the bid breakdown as directed by the **Resident Engineer**. Thereafter, the breakdown may be used only for checking the Contractor's applications for partial payments hereunder, but shall not be binding upon the City, the **Commissioner**, or the **Engineer** for any purpose whatsoever.

ARTICLE 42. PARTIAL PAYMENTS

42.1 From time to time as the **Work** progresses satisfactorily, but not more often than once each calendar month (except where the **Commissioner** approves in writing the submission of invoices on a more frequent basis and for invoices relating to **Work** performed pursuant to a change order), the Contractor may submit to the **Engineer** a requisition for a partial payment in the prescribed form, which shall contain an estimate of the quantity and the fair value of the **Work** done during the payment period.

42.2 Partial payments may be made for materials, fixtures, and equipment in advance of their actual incorporation in the **Work**, as the **Commissioner** may approve, and upon the terms and conditions set forth in the General Conditions.

42.3 The **Contractor** shall also submit to the **Commissioner** in connection with every application for partial payment a verified statement in the form prescribed by the **Comptroller** setting forth the information required under Labor Law Section 220-a.

42.4 Within thirty (30) **Days** after receipt of a satisfactory payment application, and within sixty (60) **Days** after receipt of a satisfactory payment application in relation to **Work** performed pursuant to a change order, the **Engineer** will prepare and certify, and the **Commissioner** will approve, a voucher for a partial payment in the amount of such approved estimate, less any and all deductions authorized to be made by the **Commissioner** under the terms of this **Contract** or by **Law**.

ARTICLE 43. PROMPT PAYMENT

43.1 The Prompt Payment provisions of the **PPB** Rules in effect at the time of the bid will be applicable to payments made under this **Contract**. The provisions require the payment to the **Contractor** of interest on payments made after the required payment date, except as set forth in the **PPB** Rules.

43.2 The **Contractor** shall submit a proper invoice to receive payment, except where the **Contract** provides that the **Contractor** will be paid at predetermined intervals without having to submit an invoice for each scheduled payment.

43.3 Determination of interest due will be made in accordance with the **PPB** Rules.

43.4 If the **Contractor** is paid interest, the proportionate share(s) of that interest shall be forwarded by the **Contractor** to its **Subcontractor(s)**.

43.5 The **Contractor** shall pay each **Subcontractor** or **Materialman** not later than seven (7) **Days** after receipt of payment out of amounts paid to the **Contractor** by the **City** for **Work** performed by the **Subcontractor** or **Materialman** under this **Contract**.

43.5.1 If **Contractor** fails to make any payment to any **Subcontractor** or **Materialman** within seven (7) **Days** after receipt of payment by the **City** pursuant to this Article 43.5, then the **Contractor** shall pay interest on amounts due to such **Subcontractor** or **Materialman** at the rate of interest in effect on the date such payment is made by the **Contractor** computed in accordance with Section 756-b (1)(b) of the New York General Business Law. Accrual of interest shall commence on the **Day** immediately following the expiration of the seventh **Day** following receipt of payment by the **Contractor** from the **City** and shall end on the date on which payment is made.

43.6 The **Contractor** shall include in each of its subcontracts a provision requiring each **Subcontractor** to make payment to each of its **Subcontractors** or **Materialmen** for **Work** performed under this **Contract** in the same manner and within the same time period set forth above.

ARTICLE 44. SUBSTANTIAL COMPLETION PAYMENT

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

44.1.1 A final verified statement of any pending Article 27 disputes in accordance with the **PPB** Rules and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) setting forth with respect to each

such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the **Contractor** claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay.

44.1.1(a) With respect to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City Corporation Counsel** shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 44.1.1(a) is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor** upon acceptance of the **Substantial Completion** payment pursuant to this Article 44, will have waived any such claims.

44.1.2 **A Final Approved Punch List.**

44.1.3 Where required, a request for an extension of time to achieve **Substantial Completion** or final extension of time.

44.2 The **Commissioner** shall issue a voucher calling for payment of any part or all of the balance due for **Work** performed under the **Contract**, including monies retained under Article 21, less any and all deductions authorized to be made by the **Commissioner**, under this **Contract** or by **Law**, and less twice the amount the **Commissioner** considers necessary to ensure the completion of the balance of the **Work** by the **Contractor**. Such a payment shall be considered a partial and not a final payment. No **Substantial Completion** payment shall be made under this Article 44 where the **Contractor** failed to complete the **Work** within the time fixed for such completion in the Schedule A of the General Conditions, or within the time to which completion may have been extended, until an extension or extensions of time for the completion of **Work** have been acted upon pursuant to Article 13.

44.3 No further partial payments shall be made to the **Contractor** after **Substantial Completion**, except the **Substantial Completion** payment and payment pursuant to any **Contractor's** requisition that were properly filed with the **Commissioner** prior to the date of **Substantial Completion**; however, the **Commissioner** may grant a waiver for further partial payments after the date of **Substantial Completion** to permit payments for change order **Work** and/or release of retainage and deposits pursuant to Articles 21 and 24. Such waiver shall be in writing.

44.4 The **Contractor** acknowledges that nothing contained in this Article 44 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 45. FINAL PAYMENT

45.1 After completion and **Final Acceptance** of the **Work**, the **Contractor** shall submit all required certificates and documents, together with a requisition for the balance claimed to be due under the **Contract**, less the amount authorized to be retained for maintenance under Article 24. Such submission shall be within 90 days of the date of the **Commissioner's** written determination of **Final Acceptance**, or within such additional time as may be granted by the **Commissioner** in writing. If the **Contractor** fails to submit all required certificates and documents within the time allowed, no payment of the balance claimed shall be made to the **Contractor** and the **Contractor** shall be deemed to have forfeited its right to

payment of any balance claimed. A verified statement similar to that required in connection with applications for partial payments shall also be submitted to the **Commissioner**.

45.2 Amended Verified Statement of Claims: The **Contractor** shall also submit with the final requisition any amendments to the final verified statement of any pending dispute resolution procedures in accordance with the **PPB Rules** and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) that have occurred subsequent to **Substantial Completion**, setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each such item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the **Contractor** claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay. With reference to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City Corporation Counsel** shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 45.2, is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor**, upon acceptance of the Final Payment pursuant to Article 46, will have waived any such claims.

45.3 Preparation of Final Voucher: Upon determining the balance due hereunder other than on account of claims, the **Engineer** will prepare and certify, for the **Commissioner's** approval, a voucher for final payment in that amount less any and all deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**. In the case of a lump sum **Contract**, the **Commissioner** shall certify the voucher for final payment within thirty (30) **Days** from the date of completion and acceptance of the **Work**, provided all requests for extensions of time have been acted upon.

45.3.1 All prior certificates and vouchers upon which partial payments were made, being merely estimates made to enable the **Contractor** to prosecute the **Work** more advantageously, shall be subject to correction in the final voucher, and the certification of the **Engineer** thereon and the approval of the **Commissioner** thereof, shall be conditions precedent to the right of the **Contractor** to receive any money hereunder. Such final voucher shall be binding and conclusive upon the **Contractor**.

45.3.2 Payment pursuant to such final voucher, less any deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**, shall constitute the final payment, and shall be made by the **Comptroller** within thirty (30) **Days** after the filing of such voucher in his/her office.

45.4 The **Contractor** acknowledges that nothing contained in this Article 45 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 46. ACCEPTANCE OF FINAL PAYMENT

46.1 The acceptance by the **Contractor**, or by anyone claiming by or through it, of the final payment, whether such payment be made pursuant to any judgment of any court, or otherwise, shall constitute and operate as a release of the **City** from any and all claims of and liability to the **Contractor** for anything heretofore done or furnished for the **Contractor** relating to or arising out of this **Contract** and the **Work** done hereunder, and for any prior act, neglect or default on the part of the **City** or any of its officials, agents or employees, excepting only a claim against the **City** for the amounts deducted or retained in accordance with the terms and provisions of this **Contract** or by **Law**, and excepting any

claims, not otherwise waived, or any pending dispute resolution procedures which are contained in the verified statement filed with the Contractor's substantial and final requisitions pursuant to Articles 44 and 45.

46.2 The Contractor is warned that the execution by it of a release, in connection with the acceptance of the final payment, containing language purporting to reserve claims other than those herein specifically excepted from the operation of this Article 46, or those for amounts deducted by the Commissioner from the final requisition or from the final payment as certified by the Engineer and approved by the Commissioner, shall not be effective to reserve such claims, anything stated to the Contractor orally or in writing by any official, agent or employee of the City to the contrary notwithstanding.

46.3 Should the Contractor refuse to accept the final payment as tendered by the Comptroller, it shall constitute a waiver of any right to interest thereon.

46.4 The Contractor, however, shall not be barred by this Article 46 from commencing an action for breach of Contract to the extent permitted by Law and by the terms of the Contract for any claims that are contained in the verified statement filed with the Contractor's substantial and final requisitions pursuant to Articles 44 and 45 or that arose after submission of the final payment requisition, provided that a detailed and verified statement of claim is served upon the contracting Agency and Comptroller not later than forty (40) Days after the making of such final payment by electronic funds transfer (EFT) or the mailing of such final payment. The statement shall specify the items upon which the claim will be based and any such claim shall be limited to such items.

ARTICLE 47. APPROVAL BY PUBLIC DESIGN COMMISSION

47.1 All works of art, including paintings, mural decorations, stained glass, statues, bas-reliefs, and other sculptures, monuments, fountains, arches, and other structures of a permanent character intended for ornament or commemoration, and every design of the same to be used in the performance of this Contract, and the design of all bridges, approaches, buildings, gates, fences, lamps, or structures to be erected, pursuant to the terms of this Contract, shall be submitted to the Art Commission, d/b/a the Public Design Commission of the City of New York, and shall be approved by the Public Design Commission prior to the erection or placing in position of the same. The final payment shall not become due or payable under this Contract unless and until the Public Design Commission shall certify that the design for the Work herein contracted for has been approved by the said Public Design Commission, and that the same has been executed in substantial accordance with the design so approved, pursuant to the provisions of Chapter 37, Section 854 of the City Charter, as amended.

CHAPTER X CONTRACTOR'S DEFAULT

ARTICLE 48. COMMISSIONER'S RIGHT TO DECLARE CONTRACTOR IN DEFAULT

48.1 In addition to those instances specifically referred to in other Articles herein, the Commissioner shall have the right to declare the Contractor in default of this Contract if:

48.1.1 The Contractor fails to commence Work when notified to do so by the Commissioner; or
if

48.1.2 The Contractor shall abandon the Work; or if

48.1.3 The **Contractor** shall refuse to proceed with the **Work** when and as directed by the **Commissioner**; or if

48.1.4 The **Contractor** shall, without just cause, reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the **Commissioner**, to complete the **Work** in accordance with the progress schedule; or if

48.1.5 The **Contractor** shall fail or refuse to increase sufficiently such working force when ordered to do so by the **Commissioner**; or if

48.1.6 The **Contractor** shall sublet, assign, transfer, convert or otherwise dispose of this **Contract** other than as herein specified; or sell or assign a majority interest in the **Contractor**; or if

48.1.7 The **Contractor** fails to secure and maintain all required insurance; or if

48.1.8 A receiver or receivers are appointed to take charge of the **Contractor's** property or affairs; or if

48.1.9 The **Commissioner** shall be of the opinion that the **Contractor** is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the **Work**, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if

48.1.10 The **Commissioner** shall be of the opinion that the **Contractor** is or has been willfully or in bad faith violating any of the provisions of this **Contract**; or if

48.1.11 The **Commissioner** shall be of the opinion that the **Work** cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the **Commissioner's** opinion, attributable to conditions within the **Contractor's** control; or if

48.1.12 The **Work** is not completed within the time herein provided therefor or within the time to which the **Contractor** may be entitled to have such completion extended; or if

48.1.13 Any statement or representation of the **Contractor** in the **Contract** or in any document submitted by the **Contractor** with respect to the **Work**, the **Project**, or the **Contract** (or for purposes of securing the **Contract**) was untrue or incorrect when made; or if

48.1.14 The **Contractor** or any of its officers, directors, partners, five (5%) percent shareholders, principals, or other persons substantially involved in its activities, commits any of the acts or omissions specified as the grounds for debarment in the **PPB Rules**.

48.2 Before the **Commissioner** shall exercise his/her right to declare the **Contractor** in default, the **Commissioner** shall give the **Contractor** an opportunity to be heard, upon not less than two (2) **Days** notice.

ARTICLE 49. EXERCISE OF THE RIGHT TO DECLARE DEFAULT

49.1 The right to declare the **Contractor** in default for any of the grounds specified or referred to in Article 48 shall be exercised by sending the **Contractor** a notice, signed by the **Commissioner**, setting forth the ground or grounds upon which such default is declared (hereinafter referred to as a "Notice of Default").

49.2 The **Commissioner's** determination that the **Contractor** is in default shall be conclusive, final, and binding on the parties and such a finding shall preclude the **Contractor** from commencing a plenary action for any damages relating to the **Contract**. If the **Contractor** protests the determination of the **Commissioner**, the **Contractor** may commence an action in a court of competent jurisdiction of the State of New York under Article 78 of the New York Civil Practice Law and Rules.

ARTICLE 50. QUITTING THE SITE

50.1 Upon receipt of such notice the **Contractor** shall immediately discontinue all further operations under this **Contract** and shall immediately quit the **Site**, leaving untouched all plant, materials, equipment, tools, and supplies then on the **Site**.

ARTICLE 51. COMPLETION OF THE WORK

51.1 The **Commissioner**, after declaring the **Contractor** in default, may then have the **Work** completed by such means and in such manner, by contract with or without public letting, or otherwise, as he/she may deem advisable, utilizing for such purpose such of the **Contractor's** plant, materials, equipment, tools, and supplies remaining on the **Site**, and also such **Subcontractors**, as he/she may deem advisable.

51.2 After such completion, the **Commissioner** shall make a certificate stating the expense incurred in such completion, which shall include the cost of re-letting and also the total amount of liquidated damages (at the rate provided for in the **Contract**) from the date when the **Work** should have been completed by the **Contractor** in accordance with the terms hereof to the date of actual completion of the **Work**. Such certificate shall be binding and conclusive upon the **Contractor**, its sureties, and any person claiming under the **Contractor**, as to the amount thereof.

51.3 The expense of such completion, including any and all related and incidental costs, as so certified by the **Commissioner**, and any liquidated damages assessed against the **Contractor**, shall be charged against and deducted out of monies which are earned by the **Contractor** prior to the date of default. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

ARTICLE 52. PARTIAL DEFAULT

52.1 In case the **Commissioner** shall declare the **Contractor** in default as to a part of the **Work** only, the **Contractor** shall discontinue such part, shall continue performing the remainder of the **Work** in strict conformity with the terms of this **Contract**, and shall in no way hinder or interfere with any **Other**

Contractor(s) or persons whom the **Commissioner** may engage to complete the **Work** as to which the **Contractor** was declared in default.

52.2 The provisions of this Chapter relating to declaring the **Contractor** in default as to the entire **Work** shall be equally applicable to a declaration of partial default, except that the **Commissioner** shall be entitled to utilize for completion of the part of the **Work** as to which the **Contractor** was declared in default only such plant, materials, equipment, tools, and supplies as had been previously used by the **Contractor** on such part.

ARTICLE 53. PERFORMANCE OF UNCOMPLETED WORK

53.1 In completing the whole or any part of the **Work** under the provisions of this Chapter X, the **Commissioner** shall have the power to depart from or change or vary the terms and provisions of this **Contract**, provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variation, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the **Commissioner's** certificate of the cost of completion referred to in Article 51, nor shall it constitute a defense to an action to recover the amount by which such certificate exceeds the amount which would have been payable to the **Contractor** hereunder but for its default.

ARTICLE 54. OTHER REMEDIES

54.1 In addition to the right to declare the **Contractor** in default pursuant to this Chapter X, the **Commissioner** shall have the absolute right, in his/her sole discretion and without a hearing, to complete or cause to be completed in the same manner as described in Articles 51 and 53, any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List**. A written notice of the exercise of this right shall be sent to the **Contractor** who shall immediately quit the **Site** in accordance with the provisions of Article 50.

54.2 The expense of completion permitted under Article 54.1, including any and all related and incidental costs, as so certified by the **Commissioner**, shall be charged against and deducted out of monies which have been earned by the **Contractor** prior to the date of the exercise of the right set forth in Article 54.1; the balance of such monies, if any, subject to the other provisions of this **Contract**, to be paid to the **Contractor** without interest after such completion. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

54.3 The previous provisions of this Chapter X shall be in addition to any and all other remedies available under **Law** or in equity.

54.4 The exercise by the **City** of any remedy set forth herein shall not be deemed a waiver by the **City** of any other legal or equitable remedy contained in this **Contract** or provided under **Law**.

**CHAPTER XI
MISCELLANEOUS PROVISIONS**

ARTICLE 55. CONTRACTOR'S WARRANTIES

55.1 In consideration of, and to induce, the award of this **Contract** to the **Contractor**, the **Contractor** represents and warrants:

55.1.1 That it is financially solvent, sufficiently experienced and competent to perform the **Work**; and

55.1.2 That the facts stated in its bid and the information given by it pursuant to the Information for Bidders is true and correct in all respects; and

55.1.3 That it has read and complied with all requirements set forth in the **Contract**.

ARTICLE 56. CLAIMS AND ACTIONS THEREON

56.1 Any claim, that is not subject to dispute resolution under the **PPB** Rules or this **Contract**, against the **City** for damages for breach of **Contract** shall not be made or asserted in any action, unless the **Contractor** shall have strictly complied with all requirements relating to the giving of notice and of information with respect to such claims, as herein before provided.

56.2 Nor shall any action be instituted or maintained on any such claims unless such action is commenced within six (6) months after **Substantial Completion**; except that:

56.2.1 Any claims arising out of events occurring after **Substantial Completion** and before **Final Acceptance** of the **Work** shall be asserted within six (6) months of **Final Acceptance** of the **Work**;

56.2.2 Any claims for monies deducted, retained or withheld under the provisions of this **Contract** shall be asserted within six (6) months after the date when such monies otherwise become due and payable hereunder; and

56.2.3 If the **Commissioner** exercises his/her right to terminate the **Contract** pursuant to Article 64, any such action shall be commenced within six (6) months of the date the **Commissioner** exercises said right.

ARTICLE 57. INFRINGEMENT

57.1 The **Contractor** shall be solely responsible for and shall defend, indemnify, and hold the **City** harmless from any and all claims (even if the allegations of the lawsuit are without merit) and judgments for damages and from costs and expenses to which the **City** may be subject to or which it may suffer or incur allegedly arising out of or in connection with any infringement by the **Contractor** of any copyright, trade secrets, trademark or patent rights or any other property or personal right of any third party by the **Contractor** and/or its **Subcontractors** in the performance or completion of the **Work**. Insofar as the facts or **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent permitted by **Law**.

ARTICLE 58. NO CLAIM AGAINST OFFICIALS, AGENTS OR EMPLOYEES

58.1 No claim whatsoever shall be made by the **Contractor** against any official, agent or employee of the **City** for, or on account of, anything done or omitted to be done in connection with this **Contract**.

ARTICLE 59. SERVICE OF NOTICES

59.1 The **Contractor** hereby designates the business address, fax number, and email address specified in its bid, as the place where all notices, directions or other communications to the **Contractor** may be delivered, or to which they may be mailed. Any notice, direction, or communication from either party to the other shall be in writing and shall be deemed to have been given when (i) delivered personally; (ii) sent by certified mail, return receipt requested; (iii) delivered by overnight or same day courier service in a properly addressed envelope with confirmation; or (iv) sent by fax or email and, unless receipt of the fax or e-mail is acknowledged by the recipient by fax or e-mail, deposited in a post office box regularly maintained by the United States Postal Service in a properly addressed, postage pre-paid envelope.

59.2 **Contractor's** notice address, email address, or fax number may be changed at any time by an instrument in writing, executed and acknowledged by the **Contractor**, and delivered to the **Commissioner**.

59.3 Nothing herein contained shall, however, be deemed to preclude or render inoperative the service of any notice, direction or other communication upon the **Contractor** personally, or, if the **Contractor** is a corporation, upon any officer thereof.

ARTICLE 60. UNLAWFUL PROVISIONS DEEMED STRICKEN FROM CONTRACT

60.1 If this **Contract** contains any unlawful provision not an essential part of the **Contract** and which shall not appear to have been a controlling or material inducement to the making thereof, the same shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the **Contract** without affecting the binding force of the remainder.

ARTICLE 61. ALL LEGAL PROVISIONS DEEMED INCLUDED

61.1 It is the intent and understanding of the parties to this **Contract** that each and every provision of **Law** required to be inserted in this **Contract** shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein, and if, through mistake or otherwise, any such provision is not inserted, or is not inserted in correct form, then this **Contract** shall forthwith upon the application of either party be amended by such insertion so as to comply strictly with the **Law** and without prejudice to the rights of either party hereunder.

ARTICLE 62. TAX EXEMPTION

62.1 The **City** is exempt from payment of Federal, State, and local taxes, including sales and compensating use taxes of the State of New York and its cities and counties on all tangible personal property sold to the **City** pursuant to the provisions of this **Contract**. These taxes are not to be included in bids. However, this exemption does not apply to tools, machinery, equipment or other property leased by or to the **Contractor**, **Subcontractor** or **Materialman** or to tangible personal property which, even

though it is consumed, is not incorporated into the completed **Work** (consumable supplies) and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**. The **Contractor** and its **Subcontractors** and **Materialmen** shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property and upon all such consumable supplies and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**.

62.2 The **Contractor** agrees to sell and the **City** agrees to purchase all tangible personal property, other than consumable supplies and other tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**, that is required, necessary or proper for or incidental to the construction of the **Project** covered by this **Contract**. The sum paid under this **Contract** for such tangible personal property shall be in full payment and consideration for the sale of such tangible personal property.

62.2.1 The **Contractor** agrees to construct the **Project** and to perform all **Work**, labor and services rendered, necessary, proper or incidental thereto for the sum shown in the bid for the performance of such **Work**, labor, and services, and the sum so paid pursuant to this **Contract** for such **Work**, labor, and services, shall be in full consideration for the performance by the **Contractor** of all its duties and obligations under this **Contract** in connection with said **Work**, labor, and services.

62.3 20 NYCRR Section 541.3(d) provides that a **Contractor's** purchases of tangible personal property that is either incorporated into real property owned by a governmental entity or purchased for and sold to a governmental entity are exempt from sales and use tax. The **City** shall not pay sales tax for any such tangible personal property that it purchases from the **Contractor** pursuant to the **Contract**. With respect to such tangible personal property, the **Contractor**, at the request of the **City**, shall furnish to the **City** such bills of sale and other instruments as may be required by the **City**, properly executed, acknowledged and delivered assuring to the **City** title to such tangible personal property, free of liens and/or encumbrances, and the **Contractor** shall mark or otherwise identify all such tangible personal property as the property of the **City**.

62.4 Title to all tangible personal property to be sold by the **Contractor** to the **City** pursuant to the provisions of the **Contract** shall immediately vest in and become the sole property of the **City** upon delivery of such tangible personal property to the **Site**. Notwithstanding such transfer of title, the **Contractor** shall have the full and continuing responsibility to install such tangible personal property in accordance with the provisions of this **Contract**, protect it, maintain it in a proper condition and forthwith repair, replace and make good any damage thereto, theft or disappearance thereof, and furnish additional tangible personal property in place of any that may be lost, stolen or rendered unusable, without cost to the **City**, until such time as the **Work** covered by the **Contract** is fully accepted by the **City**. Such transfer of title shall in no way affect any of the **Contractor's** obligations hereunder. In the event that, after title has passed to the **City**, any of the tangible personal property is rejected as being defective or otherwise unsatisfactory, title to all such tangible personal property shall be deemed to have been transferred back to the **Contractor**.

62.5 The purchase by **Subcontractors** or **Materialmen** of tangible personal property to be sold hereunder shall be a purchase or procurement for resale to the **Contractor** (either directly or through other **Subcontractors**) and therefore not subject to the aforesaid sales and compensating use taxes, provided that the subcontracts and purchase agreements provide for the resale of such tangible personal property and that such subcontracts and purchase agreements are in a form similar to this **Contract** with respect to the separation of the sale of consumable supplies and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work** from the **Work** and labor, services, and any other matters to be provided, and provided further that the subcontracts and

purchase agreements provide separate prices for tangible personal property and all other services and matters. Such separation shall actually be followed in practice, including the separation of payments for tangible personal property from the payments for other **Work** and labor and other things to be provided.

62.6 The **Contractor** and its **Subcontractors** and **Materialmen** shall furnish a **Contractor Exempt Purchase Certificate** to all persons, firms or corporations from which they purchase tangible personal property for the performance of the **Work** covered by this **Contract**.

62.7 In the event any of the provisions of this Article 62 shall be deemed to be in conflict with any other provisions of this **Contract** or create any ambiguity, then the provisions of this Article 62 shall control.

ARTICLE 63. INVESTIGATION(S) CLAUSE

63.1 The parties to this **Contract** agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a United States, a State of New York (State) or a **City** governmental agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath, or conducted by the Inspector General of a governmental agency that is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit or license that is the subject of the investigation, audit or inquiry.

63.2 If any person who has been advised that his/her statement, and any information from such statement, will not be used against him/her in any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with the **City**, the State, or any political subdivision or public authority thereof, or the Port Authority of New York and New Jersey, or any local development corporation within the **City**, or any public benefit corporation organized under the **Laws** of the State of New York, or;

63.3 If any person refuses to testify for a reason other than the assertion of his/her privilege against self incrimination in an investigation, audit or inquiry conducted by a **City** or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest in, and is seeking testimony concerning the award of, or performance under any transaction, agreement, lease, permit, contract, or license entered into with the **City**, the State, or any political subdivision thereof or any local development corporation within the **City**, then;

63.4 The **Commissioner** whose **Agency** is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit, or license shall convene a hearing, upon not less than five (5) **Days**' written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

63.5 If any non-governmental party to the hearing requests an adjournment, the **Commissioner** who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit, or license, pending the final determination pursuant to Article 63.7 without the **City** incurring any penalty or damages for delay or otherwise.

63.6 The penalties which may attach after a final determination by the **Commissioner** may include but shall not exceed:

63.6.1 The disqualification for a period not to exceed five (5) years from the date of an adverse determination for any person, or any entity of which such person was a member at the time the testimony was sought, from submitting bids for, or transacting business with, or entering into or obtaining any contract, lease, permit or license with or from the City; and/or

63.6.2 The cancellation or termination of any and all such existing City contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this Contract, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of the notice scheduling the hearing, without the City incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals, or fees accrued prior to the cancellation or termination shall be paid by the City.

63.7 The Commissioner shall consider and address in reaching his/her determination and in assessing an appropriate penalty the factors in Articles 63.7.1 and 63.7.2. The Commissioner may also consider, if relevant and appropriate, the criteria established in Articles 63.7.3 and 63.7.4, in addition to any other information which may be relevant and appropriate:

63.7.1 The party's good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit, including but not limited to the discipline, discharge, or disassociation of any person failing to testify, the production of accurate and complete books and records, and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought.

63.7.2 The relationship of the person who refused to testify to any entity that is a party to the hearing, including but not limited to, whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity.

63.7.3 The nexus of the testimony sought to the subject entity and its contracts, leases, permits or licenses with the City.

63.7.4 The effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in an entity subject to penalties under Article 63.6, provided that the party or entity has given actual notice to the Commissioner upon the acquisition of the interest, or at the hearing called for in Article 63.4, gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity shall present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

63.8 Definitions:

63.8.1 The term "license" or "permit" as used in this Article 63 shall be defined as a license, permit, franchise or concession not granted as a matter of right.

63.8.2 The term "person" as used in this Article 63 shall be defined as any natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

63.8.3 The term "entity" as used in this Article 63 shall be defined as any firm, partnership, corporation, association, joint venture, or person that receives monies, benefits, licenses, leases, or permits from or through the City or otherwise transacts business with the City.

63.8.4 The term "member" as used in this Article 63 shall be defined as any person associated with another person or entity as a partner, director, officer, principal or employee.

63.9 In addition to and notwithstanding any other provision of this **Contract**, the **Commissioner** may in his/her sole discretion terminate this **Contract** upon not less than three (3) **Days'** written notice in the event the **Contractor** fails to promptly report in writing to the **Commissioner** of the Department of Investigations ("DOI") of the **City** any solicitation of money, goods, requests for future employment or other benefit or thing of value, by or on behalf of any employee of the **City** or other person, firm, corporation or entity for any purpose which may be related to the procurement or obtaining of this **Contract** by the **Contractor**, or affecting the performance of this **Contract**.

ARTICLE 64. TERMINATION BY THE CITY

64.1 In addition to termination pursuant to any other article of this **Contract**, the **Commissioner** may, at any time, terminate this **Contract** by written notice to the **Contractor**. In the event of termination, the **Contractor** shall, upon receipt of such notice, unless otherwise directed by the **Commissioner**:

64.1.1 Stop **Work** on the date specified in the notice;

64.1.2 Take such action as may be necessary for the protection and preservation of the **City's** materials and property;

64.1.3 Cancel all cancelable orders for material and equipment;

64.1.4 Assign to the **City** and deliver to the **Site** or another location designated by the **Commissioner**, any non-cancelable orders for material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract** and not incorporated in the **Work**;

64.1.5 Take no action which will increase the amounts payable by the **City** under this **Contract**.

64.2 In the event of termination by the **City** pursuant to this Article 64, payment to the **Contractor** shall be in accordance with Articles 64.2.1, 64.2.2 or 64.2.3, to the extent that each respective article applies.

64.2.1 Lump Sum Contracts or Items: On all lump sum **Contracts**, or on lump sum items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.1(a) and 64.2.1(b), less all payments previously made pursuant to this **Contract**. On lump sum **Contracts** only, the **City** will also pay the **Contractor** an additional sum as provided in Article 64.2.1(c).

64.2.1(a) For **Work** completed prior to the notice of termination, the **Contractor** shall be paid a pro rata portion of the lump sum bid amount, plus approved change orders, based upon the percent completion of the **Work**, as determined by the **Commissioner**. For the purpose of determining the pro rata portion of the lump sum bid amount to which the **Contractor** is entitled, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be dispositive. The **Commissioner's** determination hereunder shall be final, binding, and conclusive.

64.2.1(b) For non-cancelable material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated in the **Work**, the **Contractor** shall be paid the lesser of the following, less salvage value:

64.2.1(b)(i) The Direct Cost, as defined in Article 64.2.4; or

64.2.1(b)(ii) The fair and reasonable value, if less than Direct Cost, of such material and equipment, plus necessary and reasonable delivery costs.

64.2.1(b)(iii) In addition, the **Contractor** shall be paid five (5%) percent of the amount described in Article 64.2.1(b)(i) or Article 64.2.1(b)(ii), whichever applies.

64.2.1(c) Except as otherwise provided in Article 64.2.1(d), on all lump sum **Contracts**, the **Contractor** shall be paid the percentage indicated below applied to the difference between the total lump sum bid amount and the total of all payments made prior to the notice of termination plus all payments allowed pursuant to Articles 64.2.1(a) and 64.2.1(b):

64.2.1(c)(i) Five (5%) percent of the first five million (\$5,000,000) dollars; and

64.2.1(c)(ii) Three (3%) percent of any amount between five million (\$5,000,000) dollars and fifteen million (\$15,000,000) dollars; plus

64.2.1(c)(iii) One (1%) percent of any amount over fifteen million (\$15,000,000) dollars.

64.2.1(d) In the event the **City** terminates a lump sum **Contract** pursuant to this Article 64 within ninety (90) **Days** after registration of the **Contract** with the **Comptroller**, the **Contractor** shall be paid one (1%) percent of the difference between the lump sum bid amount and the total of all payments made pursuant to this Article 64.2.

64.2.2 Unit Price Contracts or Items: On all unit price **Contracts**, or on unit price items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.2(a) and 64.2.2(b), less all payments previously made pursuant to this **Contract**:

64.2.2(a) For all completed units, the unit price stated in the **Contract**, and

64.2.2(b) For units that have been ordered but are only partially completed, the **Contractor** will be paid:

64.2.2(b)(i) A pro rata portion of the unit price stated in the **Contract** based upon the percent completion of the unit and

64.2.2(b)(ii) For non-cancelable material and equipment, payment will be made pursuant to Article 64.2.1(b).

64.2.3 Time and Materials Contracts or Items Based on Time and Material Records: On all **Contracts** or items in a **Contract** where payment for the **Work** is based on time and

material records, the **Contractor** shall be paid in accordance with Article 26, less all payments previously made pursuant to this **Contract**.

64.2.4 Direct Costs: Direct Costs as used in this Article 64.2 shall mean:

64.2.4(a) The actual purchase price of material and equipment, plus necessary and reasonable delivery costs,

64.2.4(b) The actual cost of labor involved in construction and installation at the **Site**, and

64.2.4(c) The actual cost of necessary bonds and insurance purchased pursuant to requirements of this **Contract** less any amounts that have been or should be refunded by the **Contractor's** sureties or insurance carriers.

64.2.4(d) Direct Costs shall not include overhead.

64.3 In no event shall any payments under this Article 64 exceed the **Contract** price for such items.

64.4 All payments pursuant to Article 64 shall be in the nature of liquidated damages and shall be accepted by the **Contractor** in full satisfaction of all claims against the **City**.

64.5 The **City** may deduct or set off against any sums due and payable pursuant to this Article 64, any deductions authorized by this **Contract** or by **Law** (including but not limited to liquidated damages) and any claims it may have against the **Contractor**. The **City's** exercise of the right to terminate the **Contract** pursuant to this Article 64 shall not impair or otherwise effect the **City's** right to assert any claims it may have against the **Contractor** in a plenary action.

64.6 Where the **Work** covered by the **Contract** has been substantially completed, as determined in writing by the **Commissioner**, termination of the **Work** shall be handled as an omission of **Work** pursuant to Articles 29 and 33, in which case a change order will be issued to reflect an appropriate reduction in the **Contract** sum, or if the amount is determined after final payment, such amount shall be paid by the **Contractor**.

ARTICLE 65. CHOICE OF LAW, CONSENT TO JURISDICTION AND VENUE

65.1 This **Contract** shall be deemed to be executed in the **City** regardless of the domicile of the **Contractor**, and shall be governed by and construed in accordance with the **Laws** of the State of New York and the **Laws** of the United States, where applicable.

65.2 The parties agree that any and all claims asserted against the **City** arising under this **Contract** or related thereto shall be heard and determined in the courts of the State of New York ("New York State Courts") located in the **City** and County of New York. To effect this **Contract** and intent, the **Contractor** agrees:

65.2.1 If the **City** initiates any action against the **Contractor** in Federal court or in a New York State Court, service of process may be made on the **Contractor** either in person, wherever such **Contractor** may be found, or by registered mail addressed to the **Contractor** at its address as set forth in this **Contract**, or to such other address as the **Contractor** may provide to the **City** in writing; and

65.2.2 With respect to any action between the **City** and the **Contractor** in a New York State Court, the **Contractor** hereby expressly waives and relinquishes any rights it might otherwise have:

65.2.2(a) To move to dismiss on grounds of forum non conveniens;

65.2.2(b) To remove to Federal Court; and

65.2.2(c) To move for a change of venue to a New York State Court outside New York County.

65.2.3 With respect to any action brought by the **City** against the **Contractor** in a Federal Court located in the **City**, the **Contractor** expressly waives and relinquishes any right it might otherwise have to move to transfer the action to a Federal Court outside the **City**.

65.2.4 If the **Contractor** commences any action against the **City** in a court located other than in the **City** and County of New York, upon request of the **City**, the **Contractor** shall either consent to a transfer of the action to a New York State Court of competent jurisdiction located in the **City** and County of New York or, if the Court where the action is initially brought will not or cannot transfer the action, the **Contractor** shall consent to dismiss such action without prejudice and may thereafter reinstate the action in a New York State Court of competent jurisdiction in New York County.

65.3 If any provision(s) of this Article 65 is held unenforceable for any reason, each and all other provision(s) shall nevertheless remain in full force and effect.

ARTICLE 66. PARTICIPATION IN AN INTERNATIONAL BOYCOTT

66.1 The **Contractor** agrees that neither the **Contractor** nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the Federal Export Administration Act of 1979, as amended, or the regulations of the United States Department of Commerce (Commerce Department) promulgated thereunder.

66.2 Upon the final determination by the Commerce Department or any other agency of the United States as to, or conviction of the **Contractor** or a substantially-owned affiliated company thereof for participation in an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder, the **Comptroller** may, at his/her option, render forfeit and void this **Contract**.

66.3 The **Contractor** shall comply in all respects, with the provisions of Section 6-114 of the Administrative Code and the rules and regulations issued by the **Comptroller** thereunder.

ARTICLE 67. LOCALLY BASED ENTERPRISE PROGRAM

67.1 This **Contract** is subject to the requirements of Section 6-108.1 of the Administrative Code and regulations promulgated thereunder. No construction contract shall be awarded unless and until these requirements have been complied with in their entirety; however, compliance with this Article 67 is not required if the Agency sets Subcontractor Participation Goals for Minority- and Women-Owned Business Enterprises (M/WBEs).

67.2 Unless specifically waived by the **Commissioner** with the approval of the Division of Economic and Financial Opportunity of the City Department of Business Services, if any portion of the **Contract** is subcontracted, not less than ten (10%) percent of the total dollar amount of the **Contract** shall be awarded to locally based enterprises (LBEs); except that where less than ten (10%) percent of the total dollar amount of the **Contract** is subcontracted, such lesser percentage shall be so awarded.

67.3 The **Contractor** shall not require performance and payment bonds from LBE **Subcontractors**.

67.4 If the **Contractor** has indicated prior to award that no **Work** will be subcontracted, no **Work** shall be subcontracted without the prior approval of the **Commissioner**, which shall be granted only if the **Contractor** makes a good faith effort beginning at least six (6) weeks before the **Work** is to be performed to obtain LBE **Subcontractors** to perform the **Work**.

67.5 If the **Contractor** has not identified sufficient LBE **Subcontractors** prior to award, it shall sign a letter of compliance stating that it complies with Section 6-108.1 of the Administrative Code, recognizes that achieving the LBE requirement is a condition of its **Contract**, and shall submit documentation demonstrating its good faith efforts to obtain LBEs. After award, the **Contractor** shall begin to solicit LBE's to perform subcontracted **Work** at least six (6) weeks before the date such **Work** is to be performed and shall demonstrate that a good faith effort has been made to obtain LBEs on each subcontract until it meets the required percentage.

67.6 Failure of the **Contractor** to comply with the requirements of Section 6-108.1 of the Administrative Code and the regulations promulgated thereunder shall constitute a material breach of this **Contract**. Remedy for such breach may include the imposition of any or all of the following sanctions:

67.6.1 Reducing the **Contractor's** compensation by an amount equal to the dollar value of the percentage of the LBE subcontracting requirement not complied with;

67.6.2 Declaring the **Contractor** in default;

67.6.3 If the **Contractor** is an LBE, de-certifying and declaring the **Contractor** ineligible to participate in the LBE program for a period of up to three (3) years.

ARTICLE 68. ANTITRUST

68.1 The **Contractor** hereby assigns, sells, and transfers to the City all right, title, and interest in and to any claims and causes of action arising under the antitrust **Laws** of New York State or of the United States relating to the particular goods or services purchased or procured by the City under this **Contract**.

ARTICLE 69. MacBRIDE PRINCIPLES PROVISIONS

69.1 Notice To All Prospective **Contractors**:

69.1.1 Local Law No. 34 of 1991 became effective on September 10, 1991 and added Section 6-115.1 of the Administrative Code. The local **Law** provides for certain restrictions on **City Contracts** to express the opposition of the people of the City to employment discrimination practices in Northern Ireland to promote freedom of work-place opportunity.

69.1.2 Pursuant to Section 6-115.1, prospective **Contractors** for **Contracts** to provide goods or services involving an expenditure of an amount greater than ten thousand

(\$10,000.) dollars, or for construction involving an amount greater than fifteen thousand (\$15,000.) dollars, are asked to sign a rider in which they covenant and represent, as a material condition of their **Contract**, that any business operations in Northern Ireland conducted by the **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** will be conducted in accordance with the MacBride Principles of nondiscrimination in employment.

69.1.3 Prospective **Contractors** are not required to agree to these conditions. However, in the case of **Contracts** let by competitive sealed bidding, whenever the lowest responsible bidder has not agreed to stipulate to the conditions set forth in this notice and another bidder who has agreed to stipulate to such conditions has submitted a bid within five (5%) percent of the lowest responsible bid for a **Contract** to supply goods, services or 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**, that it is in the best interest of the **City** that the **Contract** be awarded to other than the lowest responsible pursuant to Section 313(b)(2) of the **City Charter**.

69.1.4 In the case of **Contracts** let by other than competitive sealed bidding, if a prospective **Contractor** does not agree to these conditions, no **Agency**, elected official or the **City Council** shall award the **Contract** to that bidder unless the **Agency** seeking to use the goods, services or construction certifies in writing that the **Contract** is necessary for the **Agency** to perform its functions and there is no other responsible **Contractor** who will supply goods, services or construction of comparable quality at a comparable price.

69.2 In accordance with Section 6-115.1 of the Administrative Code, the **Contractor** stipulates that such **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** either:

69.2.1 Have no business operations in Northern Ireland, or

69.2.2 Shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Principles, and shall permit independent monitoring of their compliance with such principles.

69.3 For purposes of this Article, the following terms shall have the following meanings:

69.3.1 "MacBride Principles" shall mean those principles relating to nondiscrimination in employment and freedom of work-place opportunity which require employers doing business in Northern Ireland to:

69.3.1(a) increase the representation of individuals from under-represented religious groups in the workforce, including managerial, supervisory, administrative, clerical and technical jobs;

69.3.1(b) take steps to promote adequate security for the protection of employees from under-represented religious groups both at the work-place and while traveling to and from **Work**;

69.3.1(c) ban provocative religious or political emblems from the workplace;

69.3.1(d) publicly advertise all job openings and make special recruitment efforts to attract applicants from under-represented religious groups;

69.3.1(e) establish layoff, recall, and termination procedures which do not in practice favor a particular religious group;

69.3.1(f) abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;

69.3.1(g) develop training programs that will prepare substantial numbers of current employees from under-represented religious groups for skilled jobs, including the expansion of existing programs and the creation of new programs to train, upgrade, and improve the skills of workers from under-represented religious groups;

69.3.1(h) establish procedures to assess, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

69.3.1(i) appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 69 is in violation thereof, the **Agency** shall review such information and give the **Contractor** an opportunity to respond. If the **Agency** finds that a violation has occurred, the **Agency** shall have the right to declare the **Contractor** in default and/or terminate this **Contract** for cause and procure supplies, services or **Work** from another source in the manner the **Agency** deems proper. In the event of such termination, the **Contractor** shall pay to the **Agency**, or the **Agency** in its sole discretion may withhold from any amounts otherwise payable to the **Contractor**, the difference between the **Contract** price for the uncompleted portion of this **Contract** and the cost to the **Agency** of completing performance of this **Contract** either itself or by engaging another **Contractor** or **Contractors**. In the case of a requirement **Contract**, the **Contractor** shall be liable for such difference in price for the entire amount of supplies required by the **Agency** for the uncompleted term of **Contractor's Contract**. In the case of a construction **Contract**, the **Agency** shall also have the right to hold the **Contractor** in partial or total default in accordance with the default provisions of this **Contract**, and/or may seek debarment or suspension of the **Contractor**. The rights and remedies of the **Agency** hereunder shall be in addition to, and not in lieu of, any rights and remedies the **Agency** has pursuant to this **Contract** or by operation of Law.

ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB

70.1 The **Contractor** shall electronically file all alteration type-2 and alteration type-3 applications via the New York City Development Hub Web site, except applications for the following types of minor alterations: enlargements, curb cuts, legalizations, fire alarms, builders pavement plans, and jobs filed on Landmark Preservation Commission calendared properties. All such filings must be professionally certified. Information about electronic filing via the New York City Development Hub is available on the City Department of Buildings Web site at www.nyc.gov/buildings.

ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS

71.1 Tropical hardwoods, as defined in Section 165 of the New York State Finance Law (Finance Law), shall not be utilized in the performance of this **Contract** except as expressly permitted by Section 165 of the Finance Law.

ARTICLE 72. CONFLICTS OF INTEREST

72.1 Section 2604 of the City Charter and other related provisions of the City Charter, the Administrative Code, and the Penal Law are applicable under the terms of this Contract in relation to conflicts of interest and shall be extended to Subcontractors authorized to perform Work, labor and services pursuant to this Contract and further, it shall be the duty and responsibility of the Contractor to so inform its respective Subcontractors. Notice is hereby given that, under certain circumstances, penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

ARTICLE 73. MERGER CLAUSE

73.1 The written Contract herein, contains all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 74. STATEMENT OF WORK

74.1 The Contractor shall furnish all labor and materials and perform all Work in strict accordance with the Specifications and Addenda thereto, numbered 1.

ARTICLE 75. COMPENSATION TO BE PAID TO CONTRACTOR

75.1 The City will pay and the Contractor will accept in full consideration for the performance of the Contract, subject to additions and deductions as provided herein, the total sum of: *Eleven Million, One Hundred Twenty-Eight Thousand, Six* Dollars, (\$ *11,128,645.40*), 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.

→ Hundred Forty-Five Dollars and forty cents

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the Administrative Code, the Contractor agrees to accept payments under this Contract from the City by electronic funds transfer (EFT). An EFT is any transfer of funds, other than a transaction originated by check, draft or similar paper instrument, which is initiated through an electronic terminal, telephonic instrument or computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account. Prior to the first payment made under this Contract, the Contractor shall designate one financial institution or other authorized payment agent and shall complete the attached "EFT Vendor Payment Enrollment Form" in order to provide the Commissioner of the City Department of Finance with information necessary for the Contractor to receive electronic funds transfer payments through a designated financial institution or authorized payment agent. The crediting of the amount of a payment to the appropriate account on the books of a financial institution or other authorized payment agent designated by the Contractor shall constitute full satisfaction by the City for the amount of the payment under this Contract. The account information supplied by the Contractor to facilitate the electronic funds transfer shall remain confidential to the fullest extent provided by Law.

76.2 The Commissioner may waive the application of the requirements of this Article 76 to payments on contracts entered into pursuant to Section 315 of the City Charter. In addition, the Commissioner of the Department of Finance and the Comptroller may jointly issue standards pursuant to

which the Agency may waive the requirements of this Article 76 for payments in the following circumstances: (i) for individuals or classes of individuals for whom compliance imposes a hardship; (ii) for classifications of types of checks; or (iii) in other circumstances as may be necessary in the interest of the City.

ARTICLE 77. RECORDS RETENTION

77.1 The Contractor agrees to retain all books, records, and other documents relevant to this Contract for six years after the final payment or termination of this Contract, whichever is later. City, state, and federal auditors and any other persons duly authorized by the City shall have full access to and the right to examine any such books, records, and other documents during the retention period.

ARTICLE 78. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

NOTICE TO ALL PROSPECTIVE CONTRACTORS

ARTICLE I. M/WBE PROGRAM

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

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

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

PART A

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

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

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

2. If Participation Goals have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the Participation

Goals, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

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

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor pays to direct subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

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

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

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

C. **THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER**

ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER WILL BE NOTIFIED BY THE AGENCY AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an M/WBE Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below \$3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work. In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.**
6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at www.nyc.gov/buycertified, 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.

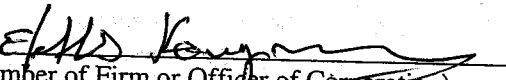
7. The Contractor's record in implementing its M/WBE Utilization Plan shall be a factor in the evaluation of its performance. Whenever Agency determines that a Contractor's compliance with an M/WBE Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement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

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

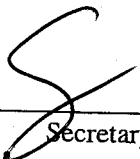
By: 
Associate Commissioner

CONTRACTOR: Lanmark Group, Inc.

By: 
(Member of Firm or Officer of Corporation)

Title: PRESIDENT

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


Secretary

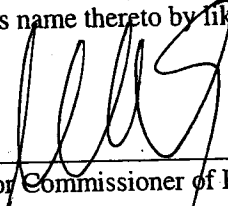
(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Queens ss:

On this 3rd day of November 2016, before me personally came Eleftherios Kougentakis to me known, who, being by me duly sworn did depose and say that he resides at 2412 National Drive, Brooklyn, NY 11234 that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

VICTORIA AYO-VAUGHAN
Notary Public, State of New York
Registration #01AY5014042
Qualified in Queens County
Commission Expires July 15, 2019



Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:


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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT BY COMMISSIONER .

State of New York County of Queens ss:

On this 3rd day of November ²⁰¹⁶, before me personally came Christine Flaherty 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, 2019

AUTHORITY

MAYOR'S CERTIFICATE NO. CBX
BUDGET DIRECTOR'S CERTIFICATE NO.

DATED
DATED

APPROPRIATION
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101 of the Administrative Code of the City of New York, it is hereby certified that the estimated cost of the work, materials and supplies required by the within Contract, amounting to

Eleven Million, one Hundred Twenty-Eight Thousand,
Six Hundred Forty-Five Dollars and Forty Cents

Dollars (\$ 11,128,645.40)

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.


Associate Commissioner

COMPTROLLER'S CERTIFICATE

The City of New York _____

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

\$ _____

Comptroller

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

Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 1)

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

hereinafter referred to as the "Principal", and _____

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

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

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

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

Performance Bond #2 (Pages 96 to 99): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 1)

PERFORMANCE BOND #2 Bond # 82381245

KNOW ALL PERSONS BY THESE PRESENTS,

That we, Lanmark Group, Inc.

2125 Mill Avenue

Brooklyn, NY 11234

hereinafter referred to as the "Principal,"
and, Federal Insurance Company

15 Mountain View Rd.

Warren, NJ 07059

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 Eleven Million One Hundred Twenty-eight Thousand Six Hundred Forty-five And 40/100THS

(\$ 11,128,645.40) 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 Bronx Hall of Justice Remediation, Bid Package 2 - FMS ID: CO290BCHJ - E-PIN: 85016B0125001 -

DDC PIN: 8502016CT0006C - Boro of the Bronx

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

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

Performance Bond #2 (Pages 96 to 99): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 2)

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 96 to 99): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 3)

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

2nd day of November 2016

(Seal)

Lanmark Group, Inc. (L.S.)

Principal

By: *Elis Kang*

(Seal)

Surety

By: _____

Federal Insurance Company

(Seal)

Surety

By: *Robert Kempner*
Robert Kempner, Attorney-In-Fact

(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 #2 (Pages 96 to 99): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of NY County of Kings ss:

On this 2nd day of November, 2016 before me personally came Geethena Kougerakis to me known, who, being by me duly sworn did depose and say that he resides at 2412 National Drive, Brooklyn, NY 11234; that he/she is the President of the corporation described in and which executed the foregoing instrument; that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

Elaine Xekardakis
Notary Public or Commissioner of Deeds.

ELAINE XEKARDAKIS
Notary Public, State of New York
Registration #01XE6224496
Qualified In Kings County
Commission Expires July 6, 2018

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.

1. The first part of the document is a list of names and addresses. The names are listed in the first column and the addresses in the second column. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.

ACKNOWLEDGEMENT OF PRINCIPAL, OF A CORPORATION

STATE OF NY

SS:

COUNTY OF Kings

On this 2nd day of November, 2016 before me personally came Eleftherios Kougentakis to me known, who, being by me duly sworn did depose and say that he resides at 2412 National Drive, Brooklyn, NY 11234 that he is the president of Lanmark Group, Inc the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to the foregoing instrument is such seal; that it was an affixed by order of the board of directors of said corporation; and that he signed his name thereto by like order.

ELAINE XEKARDAKIS
Notary Public, State of New York
Registration #01XE6224496
Qualified In Kings County
Commission Expires July 6, 2018

Elaine Xekardaki
Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF New York

SS:

COUNTY OF Nassau

On this 2nd day of November, 2016, before me personally came Robert Kempner to me known, who, being by me duly sworn, did depose and say that he is an Attorney-In-Fact of Federal Insurance Company the corporation described in and which executed the within instrument; that he knows the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he signed and said instrument and affixed the said seal as Attorney-In-Fact by authority of the Board of Directors of said corporation and by authority of this office under the Standing Resolutions thereof.

LYNN ANN INFANTI
Notary Public, State of New York
No. 01IN8004351
Qualified in Suffolk County
Commission Expires March 23, 2018

My commission expires _____

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Notary Public

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Chubb
Surety

POWER
OF
ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

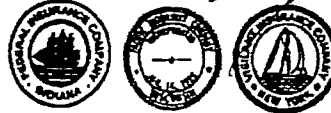
Attn: Surety Department
15 Mountain View Road
Warren, NJ 07059

Know All by These Presents, That FEDERAL INSURANCE COMPANY, a New York corporation, and PACIFIC INDEMNITY COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a Wisconsin corporation, do each hereby constitute and appoint Susan P. Hammel, Robert Kempner and Robert W. O'Kane of Plainview, New York

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations. In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY have each executed and attested these presents and affixed their corporate seals on this 17th day of November, 2014.

[Signature of Dawn M. Chloros]
Dawn M. Chloros, Assistant Secretary

[Signature of David B. Norris, Jr.]
David B. Norris, Jr., Vice President



STATE OF NEW JERSEY

SS

County of Somerset

On this 17th day of November, 2014 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies, and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority, and that she is acquainted with David B. Norris, Jr., and knows him to be Vice President of said Companies; and that the signature of David B. Norris, Jr. subscribed to said Power of Attorney is in the genuine handwriting of David B. Norris, Jr., and was thereto subscribed by authority of said By-Laws and in dependent's presence

Notarial Seal:



KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2019

[Signature of Katherine J. Adelaar]
Notary Public

CERTIFICATION

Extract from the By-Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that:

- (i) the foregoing extract of the By-Laws of the Companies is true and correct,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department, further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in American Samoa, Guam, Puerto Rico and each of the Provinces of Canada except Prince Edward Island, and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this 2nd day of November 2016



[Signature of Dawn M. Chloros]
Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

FEDERAL INSURANCE COMPANY

STATEMENT OF ASSETS, LIABILITIES AND SURPLUS TO POLICYHOLDERS

Statutory Basis

DECEMBER 31, 2015

(in thousands of dollars)

<i>ASSETS</i>		<i>LIABILITIES AND SURPLUS TO POLICYHOLDERS</i>	
Cash and Short Term Investments.....	\$ 687,917	Outstanding Losses and Loss Expenses	\$ 12,174,848
United States Government, State and Municipal Bonds	9,544,097	Unearned Premiums.....	3,726,665
Other Bonds.....	4,491,238	Dividends Payable to Stockholder	1,400,000
Stocks	692,901	Ceded Reinsurance Premiums Payable.....	329,694
Other Invested Assets.....	2,187,839	Provision for Reinsurance	35,560
		Other Liabilities.....	1,295,093
TOTAL INVESTMENTS	<u>17,603,992</u>	TOTAL LIABILITIES	<u>18,961,860</u>
Investments in Affiliates:		Capital Stock.....	20,980
Chubb Investment Holdings, Inc.....	3,679,770	Paid-In Surplus.....	3,106,809
Pacific Indemnity Company.....	2,930,246	Unassigned Funds	<u>10,150,916</u>
Executive Risk Indemnity Inc.....	1,267,144		
Chubb Insurance Investment Holdings Ltd....	1,020,650		
CC Canada Holdings Ltd.....	590,955		
Great Northern Insurance Company	469,230	SURPLUS TO POLICYHOLDERS.....	<u>13,278,705</u>
Chubb Insurance Company of Australia Ltd.	404,845		
Vigilant Insurance Company.....	306,232		
Chubb European Investment Holdings SLP ..	294,200		
Other Affiliates.....	566,480		
Premiums Receivable	1,659,749		
Other Assets	<u>1,447,072</u>		
TOTAL ADMITTED ASSETS	<u>\$ 32,240,565</u>	TOTAL LIABILITIES AND SURPLUS TO POLICYHOLDERS.....	<u>\$ 32,240,565</u>

Investments are valued in accordance with requirements of the National Association of Insurance Commissioners.
At December 31, 2015, investments with a carrying value of \$546,611,273 were deposited with government authorities
as required by law.

State, County & City of New York, — ss:

Dawn M. Chloros, Assistant Secretary _____ of the Federal Insurance Company
being duly sworn, deposes and says that the foregoing Statement of Assets, Liabilities and Surplus to Policyholders of said
Federal Insurance Company on December 31, 2015 is true and correct and is a true abstract of the Annual Statement of said
Company as filed with the Secretary of the Treasury of the United States for the 12 months ending December 31, 2015.

Subscribed and sworn to before me
this March 11, 2016.

Jeanette Shipsey

Notary Public

JEANETTE SHIPSEY
Notary Public, State of New York
No. 02SH5074142
Qualified in Nassau County
Commission Expires March 10, 2019

Dawn M. Chloros

Assistant Secretary

Payment Bond (Pages 100 to 103): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 1)

PAYMENT BOND

Bond # 82381245

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

Lanmark Group, Inc.

2125 Mill Avenue

Brooklyn, NY 11234

hereinafter referred to as the "Principal", and _____

Federal Insurance Company

15 Mountain View Rd.

Warren, NJ 07059

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

Eleven Million One Hundred Twenty-eight Thousand Six Hundred Forty-five And 40/100THS

\$11,128,645.40
(\$_____) 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 Bronx Hall of Justice Remediation, Bid Package 2 - FMS ID: CO290BCHJ - E-PIN: 85016B0125001 -

DDC PIN: 8502016CT0006C - Boro of the Bronx

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

Payment Bond (Pages 100 to 103): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 2)

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 100 to 103): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 2nd day of November, 2016.

(Seal) Lanmark Group, Inc. _____ (L.S.)
Principal

By: Edith Kangas

(Seal) Federal Insurance Company
Surety

By: Robert Kempner
Robert Kempner, Attorney-In-Fact

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Payment Bond (Pages 100 to 103): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of NY County of Kings ss:

On this 2nd day of November 2016, before me personally came Efthimerios Kougentakis to me known, who, being by me duly sworn did depose and say that he resides at 242 National Drive, Brooklyn, NY 11234 that he is the resident 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.

Elaine Xekardakis
Notary Public or Commissioner of Deeds

ELAINE XEKARDAKIS
Notary Public, State of New York
Registration #01XE6224496
Qualified In Kings County
Commission Expires July 6, 20 18

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.

RECEIVED
MAY 10 1968
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

ACKNOWLEDGEMENT OF PRINCIPAL, OF A CORPORATION

STATE OF NY

SS:

COUNTY OF Kings

On this 2nd day of November, 2016 before me personally came Efthimerios Kouzentakis to me known, who, being by me duly sworn did depose and say that he resides at 2412 National Drive Brooklyn, NY 11234 that he is the President of Lanman Group, Inc the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to the foregoing instrument is such seal; that it was an affixed by order of the board of directors of said corporation; and that he signed his name thereto by like order.

ELAINE XEKARDAKIS
Notary Public, State of New York
Registration #01XE6224496
Qualified In Kings County
Commission Expires July 6, 20 18

Elaine Xekardakis
Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF New York

SS:

COUNTY OF Nassau

On this 2nd day of November, 2016, before me personally came Robert Kempner to me known, who, being by me duly sworn, did depose and say that he is an Attorney-In-Fact of Federal Insurance Company the corporation described in and which executed the within instrument; that he knows the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he signed and said instrument and affixed the said seal as Attorney-In-Fact by authority of the Board of Directors of said corporation and by authority of this office under the Standing Resolutions thereof.

LYNN ANN INFANTI
Notary Public, State of New York
No. 01IN8004351
Qualified in Suffolk County
Commission Expires March 23, 2018

My commission expires _____

[Signature]

Notary Public

THE UNIVERSITY OF CHICAGO
LIBRARY



Chubb
Surety

POWER
OF
ATTORNEY

Federal Insurance Company
Vigilant Insurance Company
Pacific Indemnity Company

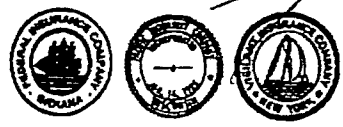
Attn: Surety Department
15 Mountain View Road
Warren, NJ 07059

Know All by These Presents, That FEDERAL INSURANCE COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a New York corporation, and PACIFIC INDEMNITY COMPANY, a Wisconsin corporation, do each hereby constitute and appoint Susan P. Hammel, Robert Kempner and Robert W. O'Kane of Plainview, New York

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations. In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY have each executed and attested these presents and affixed their corporate seals on this 17th day of November, 2014.

Dawn M. Chloros
Dawn M. Chloros, Assistant Secretary

David B. Norris, Jr.
David B. Norris, Jr., Vice President



STATE OF NEW JERSEY
County of Somerset

On this 17th day of November, 2014 before me, a Notary Public of New Jersey, personally came Dawn M. Chloros to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies, and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority, and that she is acquainted with David B. Norris, Jr., and knows him to be Vice President of said Companies; and that the signature of David B. Norris, Jr. subscribed to said Power of Attorney is in the genuine handwriting of David B. Norris, Jr., and was thereto subscribed by authority of said By-Laws and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2019

Katherine J. Adelaar
Notary Public

CERTIFICATION

Extract from the By-Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that:

- (i) the foregoing extract of the By-Laws of the Companies is true and correct,
- (ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U.S. Treasury Department, further, Federal and Vigilant are licensed in the U.S. Virgin Islands, and Federal is licensed in American Samoa, Guam, Puerto Rico, and each of the Provinces of Canada except Prince Edward Island, and
- (iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this 2nd day of November 2016



Dawn M. Chloros
Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY Telephone: (908) 903-3493 Fax: (908) 903-3656 e-mail: surety@chubb.com

FEDERAL INSURANCE COMPANY

STATEMENT OF ASSETS, LIABILITIES AND SURPLUS TO POLICYHOLDERS

Statutory Basis

DECEMBER 31, 2015

(in thousands of dollars)

ASSETS		LIABILITIES AND SURPLUS TO POLICYHOLDERS	
Cash and Short Term Investments.....	\$ 687,917	Outstanding Losses and Loss Expenses.....	\$ 12,174,848
United States Government, State and Municipal Bonds.....	9,544,097	Unearned Premiums.....	3,726,665
Other Bonds.....	4,491,238	Dividends Payable to Stockholder.....	1,400,000
Stocks.....	692,901	Ceded Reinsurance Premiums Payable.....	329,694
Other Invested Assets.....	2,187,839	Provision for Reinsurance.....	35,560
		Other Liabilities.....	1,295,093
TOTAL INVESTMENTS.....	<u>17,603,992</u>	TOTAL LIABILITIES.....	<u>18,961,860</u>
Investments in Affiliates:		Capital Stock.....	20,980
Chubb Investment Holdings, Inc.....	3,679,770	Paid-In Surplus.....	3,106,809
Pacific Indemnity Company.....	2,930,246	Unassigned Funds.....	<u>10,150,916</u>
Executive Risk Indemnity Inc.....	1,267,144		
Chubb Insurance Investment Holdings Ltd....	1,020,650	SURPLUS TO POLICYHOLDERS.....	<u>13,278,705</u>
CC Canada Holdings Ltd.....	590,955		
Great Northern Insurance Company.....	469,230		
Chubb Insurance Company of Australia Ltd.	404,845		
Vigilant Insurance Company.....	306,232		
Chubb European Investment Holdings SLP ..	294,200		
Other Affiliates.....	566,480		
Premiums Receivable.....	1,659,749		
Other Assets.....	<u>1,447,072</u>		
TOTAL ADMITTED ASSETS.....	<u>\$ 32,240,565</u>	TOTAL LIABILITIES AND SURPLUS TO POLICYHOLDERS.....	<u>\$ 32,240,565</u>

Investments are valued in accordance with requirements of the National Association of Insurance Commissioners. At December 31, 2015, investments with a carrying value of \$546,611,273 were deposited with government authorities as required by law.

State, County & City of New York, — ss:

Dawn M. Chloros, Assistant Secretary _____ of the Federal Insurance Company

being duly sworn, deposes and says that the foregoing Statement of Assets, Liabilities and Surplus to Policyholders of said Federal Insurance Company on December 31, 2015 is true and correct and is a true abstract of the Annual Statement of said Company as filed with the Secretary of the Treasury of the United States for the 12 months ending December 31, 2015.

Subscribed and sworn to before me
this March 11, 2016.

Jeanette Shipsey

Notary Public

Dawn M. Chloros

Assistant Secretary

JEANETTE SHIPSEY
Notary Public, State of New York
No. 02SH5074142
Qualified in Nassau County
Commission Expires March 10, 2019

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART III. Certification by Insurance Broker or Agent

The undersigned insurance broker or agent represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

Aon Risk Services Northeast Inc.

[Name of broker or agent (typewritten)]

900 Stewart Avenue, 3rd Floor, Garden City NY 11530

[Address of broker or agent (typewritten)]

jaclyn.paulino@aon.com

[Email address of broker or agent (typewritten)]

516-396-4377/516-681-7390

[Phone number/Fax number of broker or agent (typewritten)]

Jaclyn Paulino

[Signature of authorized official or broker or agent]

Jaclyn Paulino, Account Specialist/Broker

[Name and title of authorized official, broker or agent (typewritten)]

State of New York)
County of Nassau) ss:

Sworn to before me this

18 day of November, 2016

Anne L. Potter

NOTARY PUBLIC FOR THE STATE OF New York
ANNE L. POTTER

NOTARY PUBLIC-STATE OF NEW YORK
No. 01PO6283845
Qualified in Queens County
My Commission Expires June 17, 2017



CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
11/01/2018

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 have ADDITIONAL INSURED provisions or 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 Aon Risk Services Northeast, Inc. Garden City NY Office 900 Stewart Avenue 3rd Floor Garden City NY 11530 USA	CONTACT Stephen Klein NAME:	
	PHONE (A/C. No. Ext.): 516-396-4228	FAX (A/C. No.):
E-MAIL ADDRESS: stephen.klein@aon.com		
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A: The Phoenix Insurance Company		25623
INSURER B: The Charter Oak Fire Insurance Company		25615
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

Holder Identifier:

COVERAGES **CERTIFICATE NUMBER:** 570064247400 **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. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
B	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Contractual Liability GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			DTC0963K6034COF16	10/31/2016	10/31/2017	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$300,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$4,000,000 PRODUCTS - COMP/OP AGG \$4,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY <input type="checkbox"/> HIRE AUTOS ONLY			BA-963K6034-14-CNS	10/31/2016	10/31/2017	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION						EACH OCCURRENCE AGGREGATE
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NY) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	DTNU8963K603416	10/31/2016	10/31/2017	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE-EA EMPLOYEE \$1,000,000 E.L. DISEASE-POLICY LIMIT \$1,000,000

Certificate No.: 570064247400

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: FMS ID: C0290BCHJ, E-PIN: 8501680125001, DOC PIN: 8502016CT0006C, Bronx Hall of Justice, Remediation-Bid Package 2-Borough of the Bronx. City of New York including its officials and employees and Liro Program & Construction Management, PC (Construction Manager) are included as Additional Insured in accordance with the policy provisions of the General Liability policy.

CERTIFICATE HOLDER New York City Department of Design and Construction 30-30 Thomson Avenue Long Island City NY 11101 USA	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 <i>Aon Risk Services Northeast Inc.</i>

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Workers' Compensation Board

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

<p>1a. Legal Name & Address of Insured (use street address only) Lanmark Group, Inc. 2125 Mill Avenue Brooklyn, NY 11234</p> <p>Work Location of Insured (Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)</p>	<p>1b. Business Telephone Number of Insured 347-462-4000</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured 2045576</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 20-4557644</p>
<p>2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) New York City Department of Design and Construction 30-30 Thomson Avenue Long Island City, NY 11101</p>	<p>3a. Name of Insurance Carrier The Phoenix Insurance Company</p> <p>3b. Policy Number of Entity Listed in Box "1a" DTNUB963K6034-16</p> <p>3c. Policy effective period 10/31/16 to 10/31/17</p> <p>3d. The Proprietor, Partners or Executive Officers are <input checked="" type="checkbox"/> included. (Only check box if all partners/officers included) <input type="checkbox"/> all excluded or certain partners/officers excluded.</p>

This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. (To use this form, New York (NY) must be listed under **Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy**). The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

Will the carrier notify the certificate holder within 10 days of a policy being cancelled for non-payment of premium or within 30 days if cancelled for any other reason or if the insured is otherwise eliminated from the coverage indicated on this certificate prior to the end of the policy effective period? YES NO

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Workers' Compensation contract of insurance only while the underlying policy is in effect.

Please Note: Upon cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved by: Jaclyn Paulino
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by: *Jaclyn Paulino* 11/1/16
(Signature) (Date)

Title: Account Specialist I / Broker

Telephone Number of authorized representative or licensed agent of insurance carrier: 516-396-4377

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

Workers' Compensation Law

Section 57. Restriction on issue of permits and the entering into contracts unless compensation is secured.

1. The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any compensation to any such employee if so employed.
2. The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter.

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD
CERTIFICATE OF INSURANCE COVERAGE UNDER THE NYS DISABILITY BENEFITS LAW

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

<p>1a. Legal Name and Address of Insured (Use street address only)</p> <p>Lanmark Group Inc. 2125 Mill Avenue Brooklyn, NY 11234</p>	<p>1b. Business Telephone Number of Insured 347-462-4000</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 204557644</p>
<p>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</p> <p>New York City Department of Design and Construction 30-30 Thompson Avenue Long Island City, NY 11101</p>	<p>3a. Name of Insurance Carrier Arch Insurance Company</p> <p>3b. Policy Number of entity listed in box "1a": 11DBL8368000</p> <p>3c. Policy effective period: 1/1/2016 to 12/31/2016</p>

4. Policy covers:

a. All of the employer's employees eligible under the New York Disability Benefits Law

b. Only the following class or classes of the employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability Benefits insurance coverage as described above.

Date Signed 11/1/2016 By *Jane Ramirez*
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number 201-743-3937 Title AVP Accident & Health

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, 328 State Street, Schenectady, NY 12305.

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 (12-13)

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in box "3" on this form is certifying that it is insuring the business referenced in box "1a" for disability benefits under the New York State Disability Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in box "2". *This Certificate is valid for the earlier of one year after this form is approved by the insurance carrier or its licensed agent, or the policy expiration date listed in box "3c".*

Please Note: Upon the cancellation of the disability benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability Benefits Law.

DISABILITY BENEFITS LAW

§220. Subd. 8

(a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article.

Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 2)

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost to complete the contract as determined by the City in excess of the balance of the Contract held by the City, plus any damages or costs to which the City is entitled, up to the full amount of the above penal sum, (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, or (3) tender a completion Contractor that is acceptable to the City. The Surety (Sureties) further agrees, at its option, either to notify the City that it elects to pay the city the cost of completion plus any applicable damages and costs under option (1) above, or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and, if the Surety elects to fully perform and complete the Work, then to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. If the Surety elects to tender payment pursuant to (1) above, then the Surety shall tender such amount within fifteen (15) business days notification from the City of the cost of completion. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and complete all Work as provided herein, or to tender a completion contractor.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, and waivers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to subcontractors shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal. Notwithstanding the above, if the City makes payments to the Principal before the time required by the contract that in the aggregate exceed \$100,000 or 10% of the Contract price, whichever is less, and that have not become earned prior to the Principal being found to be in default, then all payments made to the Principal before the time required by the Contract shall be added to the remaining contract value available to be paid for the completion of the Contract as if such sums had not been paid to the Principal, but shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and to complete all Work as provided herein, or to tender a completion contractor.

Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 3)

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

(Seal) _____ (L.S.)
Principal

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

Bond Premium Rate _____

Bond Premium Cost _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * *

Affix Acknowledgments and Justification of Sureties

Performance Bond #2 (Pages 94 to 97): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 1)

PERFORMANCE BOND #2

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

hereinafter referred to as the "Principal", and _____

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

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

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

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

Performance Bond #2 (Pages 94 to 97): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page2)

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to either (1) pay the full amount of the above penal sum in complete discharge and exoneration of this bond and of all the liabilities of the Surety relating to this bond, or (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof. The Surety (Sureties) further agrees, at its option, either to tender the penal sum or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to commence and to complete all Work as provided herein.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any Work to be performed or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal.

Performance Bond #2 (Pages 94 to 97): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 3)

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

(Seal) _____ (L.S.)
Principal

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

Bond Premium Rate _____

Bond Premium Cost _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____ County of _____ ss:

On this _____ day of _____, 20____ before me personally came _____ to me known, who, being by me duly sworn did depose and say that he/she resides at _____; that he/she is the _____ of _____ the corporation described in and which executed the foregoing instrument; and that he signed his name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, 20____ before me personally came _____ to me known, who, being by me duly sworn did depose and say that he/she resides at _____; that he/she is _____ partner of _____, a limited/general partnership existing under the laws of the State of _____, the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, 20____ before me personally came _____ to me known, who, being by me duly sworn did depose and say that he/she resides at _____, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * *

Affix Acknowledgments and Justification of Sureties.

Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 1)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

hereinafter referred to as the "Principal", and _____

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

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

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

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

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so

Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 2)

engaged who perform the work of laborers or mechanics at or in the vicinity of the site of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be placed in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, Subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 3)

IN WITNESS HEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this _____ day of _____, _____.

(Seal) _____ (L.S.)
Principal

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * *

Affix Acknowledgments and Justification of Sureties

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

LABOR LAW §220 PREVAILING WAGE SCHEDULE

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Pursuant to Labor Law §220 the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work contracts.

This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to New York State Labor Law section 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public works contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public works contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public works contracts in the procurement stage must contact the contracting agency responsible for the procurement.

Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.

Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City public works contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-7974. All callers must have the agency name and contract registration number available when calling with questions on public works contracts. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasyl Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 669-4002.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law §220 (3-a) (a).

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site www.comptroller.nyc.gov. Contractors must pay the wages and supplements in effect when the worker, laborer, mechanic performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site www.comptroller.nyc.gov.

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

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

Prevailing rates and ratios for apprentices are attached to this schedule in the Appendix. Pursuant to Labor Law §220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be employed on a public work project. Workers who are not journey persons or not registered apprentices pursuant to Labor Law §220 (3-e) may not be substituted for apprentices and must be paid as journey persons.

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

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

In order to meet their obligation to provide prevailing supplemental benefits to each covered employee, employers must either:

- 1) Provide bona-fide benefits which cost the employer no less than the prevailing supplemental benefits rate; or
- 2) Supplement the employee's hourly wage by an amount no less than the prevailing supplemental benefits rate; or
- 3) Provide a combination of bona-fide benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is for each hour worked, some classifications require the payment or provision of supplemental benefits for each hour paid. Consequently, some prevailing practices require benefits to be purchased at the overtime, shift differential, Holiday, Saturday, Sunday or other premium time rate.

Benefits are paid for **EACH HOUR WORKED** unless otherwise noted.

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

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

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ASBESTOS HANDLER

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

Asbestos Handler

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$36.00**

Supplemental Benefit Rate per Hour: **\$15.95**

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$46.89**

Supplemental Benefit Rate per Hour: **\$41.19**

Blaster (Hydraulic)

Effective Period: 7/1/2015 - 6/30/2016

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

Wage Rate per Hour: \$47.71
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Trac Drill Hydraulic

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$42.25
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$41.46
Supplemental Benefit Rate per Hour: \$41.19

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$40.42
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Powder Carriers

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$36.53
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Hydraulic Trac Drill Chuck Tender

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$35.25
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Chuck Tender & Nipper

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$34.50
Supplemental Benefit Rate per Hour: \$41.19

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$20.68
Supplemental Benefit Rate per Hour: \$41.19

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$51.56

Supplemental Benefit Rate per Hour: \$41.69

Supplemental Note: For time and one half overtime - \$61.94 For double overtime - \$82.18

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

Overtime Description

For Repair and Maintenance work:

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

For New Construction work:

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Columbus Day

Election Day

Veteran's Day

Thanksgiving Day

Christmas Day

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

Labor Day

Paid Holidays

Good Friday

Day after Thanksgiving

Day before Christmas

Day before New Year's Day

Shift Rates

When shifts are required, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work seven and one-half (7 ½) hours and receive eight hours at the regular straight time hourly rate plus twenty-five cents (\$0.25) per hour. The third shift shall work seven (7) hours and receive eight hours at the regular straight time hourly rate plus fifty cents (\$0.50) per hour. A thirty (30) minute lunch period shall not be considered as time worked. Work in excess of the above shall be paid overtime at the appropriate new construction work or repair work overtime wage and supplemental benefit hourly rate.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$48.91

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

Supplemental Benefit Rate per Hour: \$28.03

Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$50.50

Supplemental Benefit Rate per Hour: \$45.88

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

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

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$50.50**

Supplemental Benefit Rate per Hour: **\$46.65**

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

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

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$49.60

Supplemental Benefit Rate per Hour: \$43.00

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.

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

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.

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

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$42.48**

Supplemental Benefit Rate per Hour: **\$26.57**

Supplemental Note: **\$29.32 on Saturdays; \$32.07 on Sundays & Holidays**

Overtime Description

Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

Overtime

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

1/2 day before Christmas Day

1/2 day before New Year's Day

Shift Rates

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

(Cement Concrete Workers District Council)

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

CEMENT MASON

Cement Mason

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$38.88

Supplemental Benefit Rate per Hour: \$39.80

Supplemental Note: For time and one half overtime - \$49.05; For double overtime - \$58.30

Overtime Description

Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

Shift Rates

For an off shift day, (work at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential. Four Days a week at Ten (10)hour day.

(Local #780)

CORE DRILLER

Core Driller

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$36.82

Supplemental Benefit Rate per Hour: \$22.69

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

Core Driller Helper

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$29.44
Supplemental Benefit Rate per Hour: \$22.69

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.50
Supplemental Benefit Rate per Hour: \$22.69

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.55
Supplemental Benefit Rate per Hour: \$22.69

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$20.61
Supplemental Benefit Rate per Hour: \$22.69

Overtime Description

Time and one half the regular rate for work on a holiday plus Holiday pay when worked.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays

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

Shift Rates

The shift day shall be the continuous eight and one-half (8½) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (½) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents (\$0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

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

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$44.84

Supplemental Benefit Rate per Hour: \$49.28

Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. \$50.70 - For work performed in Staten Island.

Overtime Description

The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct \$1.42 from the Staten Island hourly benefits rate before computing overtime.

Overtime

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day
Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

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

(Local #197)

DIVER

Diver (Marine)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$63.82

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

Supplemental Benefit Rate per Hour: \$46.65

Diver Tender (Marine)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$45.47

Supplemental Benefit Rate per Hour: \$46.65

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$50.50

Supplemental Benefit Rate per Hour: \$46.65

Overtime

Time and one half the regular rate after an 8 hour day.

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

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Dump Truck

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$39.53**

Supplemental Benefit Rate per Hour: **\$41.59**

Supplemental Note: Over 40 hours worked: time and one half rate \$16.94, double time rate \$22.58

Driver - Tractor Trailer

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$39.50**

Supplemental Benefit Rate per Hour: **\$43.35**

Supplemental Note: For over 40 hours worked: at time and one half - \$16.65; at double time - \$22.20

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$40.06**

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

Supplemental Benefit Rate per Hour: **\$43.35**

Supplemental Note: Over 40 hours worked: time and one half rate \$16.65 double time rate \$22.20

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

Shift Rates

Off single shift work commencing between 6:00 P.M. and 5:00 A.M. shall work eight and one half hours allowing for one half hour for lunch and receive 9 hours pay for 8 hours of work.

Driver Redi-Mix (Sand & Gravel)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$36.30**

Supplemental Benefit Rate per Hour: **\$40.02**

Supplemental Note: Over 40 hours worked: time and one half rate \$13.90, double time rate \$18.53

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

Overtime Description

For Paid Holidays: Employees working two (2) days in the calendar week in which the holiday falls are to be 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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$54.00
Supplemental Benefit Rate per Hour: \$50.03

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

Electrician "A" (Regular Day Overtime)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$81.00
Supplemental Benefit Rate per Hour: \$53.41

Electrician "A" (Day Shift)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$54.00
Supplemental Benefit Rate per Hour: \$50.03

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$81.00
Supplemental Benefit Rate per Hour: \$53.41

Electrician "A" (Swing Shift)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$63.36
Supplemental Benefit Rate per Hour: \$56.94

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$95.04
Supplemental Benefit Rate per Hour: \$60.91

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$70.97
Supplemental Benefit Rate per Hour: \$62.78

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$106.46
Supplemental Benefit Rate per Hour: \$67.23

Overtime

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

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

Overtime Holidays

Time and one half the regular rate for work on a holiday.

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

Paid Holidays

None

Shift Rates

When so elected by the Employer, one or more shifts of at least five days duration may be scheduled as follows:
Day Shift: 8:00 am to 4:30 pm, Swing Shift 4:30 pm to 12:30 am, Graveyard Shift: 12:30 am to 8:00 am.

For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is \$24.39.

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.50

Supplemental Benefit Rate per Hour: \$20.82

First and Second Year "M" Wage Rate Per Hour: \$23.00

First and Second Year "M" Supplemental Rate: \$18.56

Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$41.25

Supplemental Benefit Rate per Hour: \$22.54

First and Second Year "M" Wage Rate Per Hour: \$34.50

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

First and Second Year "M" Supplemental Rate: \$20.00

Overtime

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

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
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: 7/1/2015 - 3/9/2016

Wage Rate per Hour: \$31.40

Supplemental Benefit Rate per Hour: \$14.76

Supplemental Note: \$13.26 only after 8 hours worked in a day

Effective Period: 3/10/2016 - 6/30/2016

Wage Rate per Hour: \$32.00

Supplemental Benefit Rate per Hour: \$15.47

Supplemental Note: \$13.97 only after 8 hours worked in a day

Overtime Description

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

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. Up to 4 vacation days may be used as sick days.

(Local #3)

ELECTRICIAN-STREET LIGHTING WORKER

Electrician - Electro Pole Electrician

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$54.00

Supplemental Benefit Rate per Hour: \$51.86

Electrician - Electro Pole Foundation Installer

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$40.93
Supplemental Benefit Rate per Hour: \$39.46

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$35.05
Supplemental Benefit Rate per Hour: \$35.51

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: 7/1/2015 - 3/16/2016
Wage Rate per Hour: \$59.55
Supplemental Benefit Rate per Hour: \$31.07

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

Effective Period: 3/17/2016 - 6/30/2016

Wage Rate per Hour: \$60.96

Supplemental Benefit Rate per Hour: \$32.67

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: 7/1/2015 - 3/16/2016

Wage Rate per Hour: \$46.92

Supplemental Benefit Rate per Hour: \$30.91

Effective Period: 3/17/2016 - 6/30/2016

Wage Rate per Hour: \$47.91

Supplemental Benefit Rate per Hour: \$32.51

Overtime Description

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§220 PREVAILING WAGE SCHEDULE

For Scheduled Service Work: Double time - work scheduled in advance by two or more workers 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

Afternoon shift - regularly hourly rate plus a (15%) fifteen percent differential. Graveyard shift - time and one half the regular rate.

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ENGINEER

Engineer - Heavy Construction Operating Engineer I

Cherry pickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$64.31

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: \$102.90

Engineer - Heavy Construction Operating Engineer II

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

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Hoist) & 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$62.40

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: \$99.84

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$59.20

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: \$94.72

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$62.11

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: \$99.38

Engineer - Heavy Construction Maintenance Engineer II

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

On Base Mounted Tower Cranes

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$81.54**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$130.46**

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$41.04**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$65.66**

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$42.11**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$67.38**

Engineer - Heavy Construction Oilers I

Gradalls, Cold Planer Grader, Concrete Pumps, Driving Truck Cranes, Driving and Operating Fuel and Grease Trucks.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$56.02**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$89.63**

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$38.79**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$62.06**

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

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$59.77**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$95.63**

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$55.95**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$89.52**

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$42.64**

Supplemental Benefit Rate per Hour: **\$34.25**

Supplemental Note: \$61.60 on overtime

Shift Wage Rate: **\$68.22**

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

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

Thanksgiving Day
Day after Thanksgiving
Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$56.88

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$44.22

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$54.08

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

Engineer - Building Work Oilers II

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Guniting Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$40.21

Supplemental Benefit Rate per Hour: \$34.25

Supplemental Note: \$61.60 on overtime

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

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$37.04**
Supplemental Benefit Rate per Hour: **\$18.60**
Supplemental Note: Overtime Benefit Rate - \$25.45 per hour (time & one half) \$32.30 per hour (double time).

Instrument Person

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$30.59**
Supplemental Benefit Rate per Hour: **\$18.60**
Supplemental Note: Overtime Benefit Rate - \$25.45 per hour (time & one half) \$32.30 per hour (double time).

Rodperson

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

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$26.52**

Supplemental Benefit Rate per Hour: **\$18.60**

Supplemental Note: Overtime Benefit Rate - \$25.45 per hour (time & one half) \$32.30 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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$60.77**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime Benefit Rate - \$45.28 per hour (time & one half) \$58.15 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$47.20**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime Benefit Rate - \$45.28 per hour (time & one half) \$58.15 per hour (double time).

Field Engineer - BC Rodperson

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

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$30.49**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime Benefit Rate - \$45.28 per hour (time & one half) \$58.15 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$66.43**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$48.82**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 per hour (double time).

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§220 PREVAILING WAGE SCHEDULE

Field Engineer - HC Rodperson

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$40.99**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$62.26**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$48.57**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2015 - 6/30/2016

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Wage Rate per Hour: **\$32.61**

Supplemental Benefit Rate per Hour: **\$32.40**

Supplemental Note: Overtime benefit rate - \$45.28 per hour (time & one half), \$58.15 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$71.75**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: **\$114.80**

Operating Engineer - Road & Heavy Construction II

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$74.29**

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Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$118.86**

Operating Engineer - Road & Heavy Construction III

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$76.67**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$122.67**

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$74.84**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$119.74**

Operating Engineer - Road & Heavy Construction V

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$73.36**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$117.38**

Operating Engineer - Road & Heavy Construction VI

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$69.69**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$111.50**

Operating Engineer - Road & Heavy Construction VII

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

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Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$56.25
Supplemental Benefit Rate per Hour: \$30.40
Supplemental Note: \$55.10 overtime hours
Shift Wage Rate: \$90.00

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$43.63
Supplemental Benefit Rate per Hour: \$30.40
Supplemental Note: \$55.10 overtime hours
Shift Wage Rate: \$55.03

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$66.26
Supplemental Benefit Rate per Hour: \$30.40
Supplemental Note: \$55.10 overtime hours
Shift Wage Rate: \$106.02

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$60.89
Supplemental Benefit Rate per Hour: \$30.40
Supplemental Note: \$55.10 overtime hours
Shift Wage Rate: \$97.42

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$47.28
Supplemental Benefit Rate per Hour: \$30.40
Supplemental Note: \$55.10 overtime hours
Shift Wage Rate: \$75.65

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

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Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$70.42**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$112.67**

Operating Engineer - Road & Heavy Construction XIII

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$68.19**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$109.10**

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$65.20**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$104.32**

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$43.91**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$70.26**

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: **\$62.25**
Supplemental Benefit Rate per Hour: **\$30.40**
Supplemental Note: **\$55.10** overtime hours
Shift Wage Rate: **\$99.60**

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§220 PREVAILING WAGE SCHEDULE

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$62.74

Supplemental Benefit Rate per Hour: \$30.40

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: \$100.38

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$90.09

Supplemental Benefit Rate per Hour: \$30.40

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: \$144.14

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$69.69

Supplemental Benefit Rate per Hour: \$30.40

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: \$111.50

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$67.87

Supplemental Benefit Rate per Hour: \$30.40

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: \$108.59

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$57.40

Supplemental Benefit Rate per Hour: \$30.40

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: \$91.84

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Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$74.51**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: **\$55.10** overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.25**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: **\$55.10** overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$59.51**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: **\$55.10** overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$77.40**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: **\$55.10** overtime hours

Shift Wage Rate: **\$123.84**

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$74.37**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: **\$55.10** overtime hours

Shift Wage Rate: **\$118.99**

Operating Engineer - Steel Erection III

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Compressors, Welding Machines.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.09**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: **\$70.54**

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$41.98**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Shift Wage Rate: **\$67.17**

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$61.27**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$45.85**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$69.76**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Operating Engineer - Building Work IV

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$73.91**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$68.09**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$67.37**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$53.54**

Supplemental Benefit Rate per Hour: **\$30.40**

Supplemental Note: \$55.10 overtime hours

For New House Car projects Wage Rate per Hour **\$42.70**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$50.50**

Supplemental Benefit Rate per Hour: **\$45.88**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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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: 7/1/2015 - 10/31/2015

Wage Rate per Hour: **\$43.35**

Supplemental Benefit Rate per Hour: **\$36.59**

Supplemental Note: Supplemental Benefit Overtime Rate: **\$45.34**

Effective Period: 11/1/2015 - 6/30/2016

Wage Rate per Hour: **\$43.95**

Supplemental Benefit Rate per Hour: **\$36.84**

Supplemental Note: Supplemental Benefit Overtime Rate: **\$45.59**

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

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$23.68

Supplemental Benefit Rate per Hour: \$19.54

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

(Local #1281)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$57.38

Supplemental Benefit Rate per Hour: \$37.41

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 will be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). Other House Wreckers may be Tier B House Wreckers.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$35.52

Supplemental Benefit Rate per Hour: \$26.86

House Wrecker - Tier B

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$24.90

Supplemental Benefit Rate per Hour: \$19.88

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

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

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

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$43.20

Supplemental Benefit Rate per Hour: \$47.67

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$48.75

Supplemental Benefit Rate per Hour: \$67.34

Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

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

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$40.50

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§220 PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$36.53

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.00

Supplemental Benefit Rate per Hour: \$14.55

Landscaper (3 - 6 years experience)

Effective Period: 7/1/2015 - 6/30/2016

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Wage Rate per Hour: \$26.00
Supplemental Benefit Rate per Hour: \$14.55

Landscaper (up to 3 years experience)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.50
Supplemental Benefit Rate per Hour: \$14.55

Groundperson

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.50
Supplemental Benefit Rate per Hour: \$14.55

Tree Remover / Pruner

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$32.00
Supplemental Benefit Rate per Hour: \$14.55

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$22.00
Supplemental Benefit Rate per Hour: \$14.55

Watering - Plant Maintainer

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$17.00
Supplemental Benefit Rate per Hour: \$14.55

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

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

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: 7/1/2015 - 12/31/2015

Wage Rate per Hour: **\$51.53**

Supplemental Benefit Rate per Hour: **\$35.73**

Effective Period: 1/1/2016 - 6/30/2016

Wage Rate per Hour: **\$51.89**

Supplemental Benefit Rate per Hour: **\$36.62**

Marble Finisher

Effective Period: 7/1/2015 - 12/31/2015

Wage Rate per Hour: **\$40.53**

Supplemental Benefit Rate per Hour: **\$34.52**

Effective Period: 1/1/2016 - 6/30/2016

Wage Rate per Hour: **\$40.80**

Supplemental Benefit Rate per Hour: **\$35.15**

Marble Polisher

Effective Period: 7/1/2015 - 12/31/2015

Wage Rate per Hour: **\$36.65**

Supplemental Benefit Rate per Hour: **\$26.63**

Effective Period: 1/1/2016 - 6/30/2016

Wage Rate per Hour: **\$37.02**

Supplemental Benefit Rate per Hour: **\$27.01**

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.

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§220 PREVAILING WAGE SCHEDULE

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$36.67

Supplemental Benefit Rate per Hour: \$28.02

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

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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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$35.46

Supplemental Benefit Rate per Hour: \$22.13

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$24.65

Supplemental Benefit Rate per Hour: \$16.45

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

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Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$43.63

Supplemental Benefit Rate per Hour: \$41.57

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 (1/2) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00

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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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$49.50

Supplemental Benefit Rate per Hour: \$52.01

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$45.91**

Supplemental Benefit Rate per Hour: **\$38.15**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of **\$48.92** per hour.

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.30**

Supplemental Benefit Rate per Hour: **\$38.14**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of **\$48.91** per hour.

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.30**

Supplemental Benefit Rate per Hour: **\$38.14**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of **\$48.91** 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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$41.00**

Supplemental Benefit Rate per Hour: **\$26.37**

Supplemental Note: \$31.00 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.00**

Supplemental Benefit Rate per Hour: **\$26.37**

Supplemental Note: \$31.00 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

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Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$40.30

Supplemental Benefit Rate per Hour: \$7.22

Journey person

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$37.48

Supplemental Benefit Rate per Hour: \$7.22

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

Martin Luther King Jr. Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Two (2) additional holidays as floating holidays

(Local #8A-28A)

PAINTER - STRIPER

Striper (paint)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$35.00

Supplemental Benefit Rate per Hour: \$12.27

Supplemental Note: Overtime Supplemental Benefit rate - \$8.02 New Hire Rate (0-3 months) - \$0.00

Lineperson (thermoplastic)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$39.00

Supplemental Benefit Rate per Hour: \$12.27

Supplemental Note: Overtime Supplemental Benefit rate - \$8.02; New Hire Rate (0-3 months) - \$0.00

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Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
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: 7/1/2015 - 9/30/2015
Wage Rate per Hour: \$48.00
Supplemental Benefit Rate per Hour: \$34.58

Effective Period: 10/1/2015 - 6/30/2016
Wage Rate per Hour: \$49.00
Supplemental Benefit Rate per Hour: \$36.08

Painter - Power Tool

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Effective Period: 7/1/2015 - 9/30/2015

Wage Rate per Hour: \$54.00

Supplemental Benefit Rate per Hour: \$34.58

Effective Period: 10/1/2015 - 6/30/2016

Wage Rate per Hour: \$55.00

Supplemental Benefit Rate per Hour: \$36.08

Overtime Description

Supplemental Benefits shall be paid for each hour worked, up to forty (40) hours per week for the period of May 1st to November 15th or up to fifty (50) hours per week for the period of November 16th to April 30th.

Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

Regular hourly rates plus a ten per cent (10%) differential

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2015 - 6/30/2016

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.

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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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$44.85**

Supplemental Benefit Rate per Hour: **\$36.92**

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$40.98**

Supplemental Benefit Rate per Hour: **\$36.92**

Production Paver & Roadbuilder - Screed Person

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(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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$45.45

Supplemental Benefit Rate per Hour: \$36.92

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$44.85

Supplemental Benefit Rate per Hour: \$36.92

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$41.56

Supplemental Benefit Rate per Hour: \$36.92

Overtime Description

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

If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

Employees who work on a holiday listed below receive the straight time rate plus one day's pay for the holiday.

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Paid Holidays

Memorial Day

Independence Day

Labor Day

Presidential Election Day

Thanksgiving Day

Shift Rates

When two shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three shifts are employed, each shift will work seven and one half (7 ½) hours but will be paid for eight (8) hours since only one half (1/2) hour is allowed for meal time.

When two or more shifts are employed, single time will be paid for each shift.

Night Work - On night work, the first eight (8) hours of work will be paid for at the single time rate, except that production paving work shall be paid at 15% over the single time rate for the screed person, rakers and

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$43.43**

Supplemental Benefit Rate per Hour: **\$27.95**

Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

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

New Year's Day

Martin Luther King Jr. Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

When it is not possible to conduct alteration work during regular work hours, in a building occupied by tenants, said work shall proceed on a shift basis: however work over seven (7) hours in any twenty four (24) hour period, the time after seven (7) hours shall be considered overtime.

The second shift shall start at a time between 3:30 p.m. and 7:00 p.m. and shall consist of seven (7) working hours and shall receive eight (8) hours of wages and benefits at the straight time rate. The workers on the second shift shall be allowed one-half (½) hour to eat with this time being included in the seven (7) hours of work.

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

(Local #530)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$36.67

Supplemental Benefit Rate per Hour: \$28.02

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: 7/1/2015 - 6/30/2016

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

Wage Rate per Hour: **\$65.27**

Supplemental Benefit Rate per Hour: **\$28.38**

Supplemental Note: Overtime supplemental benefit rate per hour: **\$56.48**

Plumber - Temporary Services

Temporary Services - When there are no Plumbers on the job site, there may be three shifts designed to cover the entire twenty-four hour period, including weekends if necessary, at the following rate straight time.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$52.24**

Supplemental Benefit Rate per Hour: **\$22.28**

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 (MECHANICAL EQUIPMENT AND SERVICE)

(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$39.27

Supplemental Benefit Rate per Hour: \$13.34

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$45.19

Supplemental Benefit Rate per Hour: \$20.62

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

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

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

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
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 Oil Trades (Installation and Maintenance)

Plumber - Pump & Tank

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$62.83

Supplemental Benefit Rate per Hour: \$21.37

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$47.41

Supplemental Benefit Rate per Hour: \$24.40

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

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

(Bricklayer District Council)

ROOFER

Roofer

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$40.70**

Supplemental Benefit Rate per Hour: **\$30.17**

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: 7/1/2015 - 6/30/2016

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

Wage Rate per Hour: \$47.41

Supplemental Benefit Rate per Hour: \$24.40

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$46.96

Supplemental Benefit Rate per Hour: \$45.19

Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Sheet Metal Worker - Fan Maintenance

(The temporary operation of fans or blowers in new or existing buildings for heating and/or ventilation, and/or air conditioning prior to the completion of the project.)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$37.57

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

Supplemental Benefit Rate per Hour: \$45.19

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$12.90

Supplemental Benefit Rate per Hour: \$8.07

Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

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.

(Local #28)

SHEET METAL WORKER - SPECIALTY
(Decking & Siding)

Sheet Metal Specialty Worker

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$42.64

Supplemental Benefit Rate per Hour: \$23.62

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)

SHIPYARD WORKER

Shipyard Mechanic - First Class

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.54

Supplemental Benefit Rate per Hour: \$3.01

Shipyard Mechanic - Second Class

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$20.22

Supplemental Benefit Rate per Hour: \$2.73

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

Shipyard Laborer - First Class

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$20.90
Supplemental Benefit Rate per Hour: \$2.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$13.86
Supplemental Benefit Rate per Hour: \$2.48

Shipyard Dockhand - First Class

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.61
Supplemental Benefit Rate per Hour: \$2.86

Shipyard Dockhand - Second Class

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$15.94
Supplemental Benefit Rate per Hour: \$2.56

Overtime Description

Work performed on holiday is paid double time the regular hourly wage rate plus holiday pay.

Overtime

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

Paid Holidays

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

Based on Survey Data

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

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$45.60

Supplemental Benefit Rate per Hour: \$46.28

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$55.00

Supplemental Benefit Rate per Hour: \$52.79

Supplemental Note: Overtime supplemental benefit rate: \$104.84

Steamfitter -Temporary Services

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

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$41.80

Supplemental Benefit Rate per Hour: \$42.76

Supplemental Note: .

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$55.00

Supplemental Benefit Rate per Hour: \$52.79

Supplemental Note: Overtime supplemental benefit rate: \$104.84

Steamfitter -Temporary Services

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

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required.

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$41.80

Supplemental Benefit Rate per Hour: \$42.76

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

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$39.25
Supplemental Benefit Rate per Hour: \$13.81

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$32.25
Supplemental Benefit Rate per Hour: \$12.44

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.72
Supplemental Benefit Rate per Hour: \$11.30

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$22.93
Supplemental Benefit Rate per Hour: \$10.45

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$19.02
Supplemental Benefit Rate per Hour: \$9.67

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: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$13.91
Supplemental Benefit Rate per Hour: \$8.78

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

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

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

New Year's Day
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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$47.20**

Supplemental Benefit Rate per Hour: **\$37.15**

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

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

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: 7/1/2015 - 12/29/2015

Wage Rate per Hour: **\$46.32**

Supplemental Benefit Rate per Hour: **\$22.66**

Effective Period: 12/30/2015 - 6/30/2016

Wage Rate per Hour: **\$46.82**

Supplemental Benefit Rate per Hour: **\$22.66**

Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Thanksgiving Day

Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$40.35

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

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$40.03

Supplemental Benefit Rate per Hour: \$29.71

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

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

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$51.61

Supplemental Benefit Rate per Hour: \$33.46

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

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

Timberperson

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$45.60**

Supplemental Benefit Rate per Hour: **\$46.67**

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.

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

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: **\$59.17**

Supplemental Benefit Rate per Hour: **\$49.45**

Tunnel Workers (Compressed Air Rates)

Effective Period: 7/1/2015 - 6/30/2016

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

Wage Rate per Hour: \$57.12
Supplemental Benefit Rate per Hour: \$47.80

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$56.07
Supplemental Benefit Rate per Hour: \$46.96

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$55.06
Supplemental Benefit Rate per Hour: \$46.07

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$55.06
Supplemental Benefit Rate per Hour: \$46.07

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$48.16
Supplemental Benefit Rate per Hour: \$43.62

Blasters (Free Air Rates)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$56.47
Supplemental Benefit Rate per Hour: \$47.47

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$54.04
Supplemental Benefit Rate per Hour: \$45.45

All Others (Free Air Rates)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$49.93
Supplemental Benefit Rate per Hour: \$42.06

Microtunneling (Free Air Rates)

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

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$43.23

Supplemental Benefit Rate per Hour: \$36.36

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.

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 Journeyman: 1 to 1, 1 to 3)

Asbestos Handler (First 1000 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 78% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$15.95

Asbestos Handler (Second 1000 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$15.95

Asbestos Handler (Third 1000 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 83% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$15.95

Asbestos Handler (Fourth 1000 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 89% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$15.95

(Local #78)

BOILERMAKER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Boilermaker (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.00

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyman's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate Per Hour: \$31.66

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$33.32

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$35.00

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$36.67

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$38.34

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$40.01

(Local #5)

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

Bricklayer (First 750 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$17.10

Bricklayer (Second 750 Hours)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$17.10

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$17.10

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$17.10

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$17.10

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 95% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$17.10

(Bricklayer District Council)

CARPENTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.14

Carpenter (Second Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.14

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

Carpenter (Third Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.14

Carpenter (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.14

(Carpenters District Council)

CEMENT MASON

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Cement Mason (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 50% of Journeyman's Rate

Cement Mason (Second Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 60% of Journeyman's Rate

Cement Mason (Third Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 70% of Journeyman's Rate

(Local #780)

CEMENT AND CONCRETE WORKER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Cement & Concrete Worker (First 1333 hours)

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$18.84

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$24.65

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$25.47

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyman's rate

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

(Local #197)

DOCKBUILDER/PILE DRIVER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.52

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.52

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.52

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.52

(Carpenters District Council)

ELECTRICIAN

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$13.00

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

Supplemental Benefit Rate per Hour: \$11.61
Overtime Supplemental Rate Per Hour: \$12.47

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$14.00
Supplemental Benefit Rate per Hour: \$12.12
Overtime Supplemental Rate Per Hour: \$13.04

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$15.00
Supplemental Benefit Rate per Hour: \$12.63
Overtime Supplemental Rate Per Hour: \$13.62

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$16.00
Supplemental Benefit Rate per Hour: \$13.14
Overtime Supplemental Rate Per Hour: \$14.19

Electrician (Third Term: 0-6 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$17.00
Supplemental Benefit Rate per Hour: \$13.65
Overtime Supplemental Rate Per Hour: \$14.77

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$18.00
Supplemental Benefit Rate per Hour: \$14.16
Overtime Supplemental Rate Per Hour: \$15.34

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$19.00
Supplemental Benefit Rate per Hour: \$14.67
Overtime Supplemental Rate Per Hour: \$15.92

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$21.00

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$15.68
Overtime Supplemental Rate Per Hour: \$17.07

Electrician (Fifth Term: 0-12 Months - Hired on or after 5/10/07)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.00
Supplemental Benefit Rate per Hour: \$18.56
Overtime Supplemental Rate Per Hour: \$20.00

Electrician (Fifth Term: 13-18 Months - Hired on or after 5/10/07)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$27.50
Supplemental Benefit Rate per Hour: \$20.82
Overtime Supplemental Rate Per Hour: \$22.54

Electrician (Fifth Term: 0-18 Months - Hired before 5/10/07)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.80
Supplemental Benefit Rate per Hour: \$20.46
Overtime Supplemental Rate Per Hour: \$22.14

Overtime Description

Overtime Wage paid at time and one half the regular rate
For "A" rated Apprentices (work in excess of 7 hours per day)
For "M" rated Apprentices (work in excess of 8 hours per day)

(Local #3)

ELEVATOR CONSTRUCTOR
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$26.94

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$28.41

Elevator (Constructor) - Second Year

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$27.35

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$28.84

Elevator (Constructor) - Third Year

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$28.17

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.69

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.00

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.54

(Local #1)

ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: \$26.87

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: \$28.34

Elevator Service/Modernization Mechanic (Second Year)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: \$27.27

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: \$28.76

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: \$28.08

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: \$29.60

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2015 - 3/16/2016
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: \$28.89

Effective Period: 3/17/2016 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: \$30.43

(Local #1)

ENGINEER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.68
Supplemental Benefit Rate per Hour: \$22.55

Engineer - Second Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$29.60
Supplemental Benefit Rate per Hour: \$22.55

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Engineer - Third Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$32.56
Supplemental Benefit Rate per Hour: \$22.55

Engineer - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$35.52
Supplemental Benefit Rate per Hour: \$22.55

(Local #15)

ENGINEER - OPERATING

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: \$20.15

Operating Engineer - Second Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyperson's Rate
Supplemental Benefit Per Hour: \$20.15

Operating Engineer - Third Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: \$20.15

(Local #14)

FLOOR COVERER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$31.14

Floor Coverer (Second Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$31.14

Floor Coverer (Third Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$31.14

Floor Coverer (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$31.14

(Carpenters District Council)

GLAZIER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$13.64
Effective 11/1/2015 - Supplemental Rate Per Hour: \$13.79

Glazier (Second Year)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate

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

Supplemental Rate Per Hour: \$22.97

Effective 11/1/2015 - Supplemental Rate Per Hour: \$23.13

Glazier (Third Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 60% of Journeyman's rate

Supplemental Rate Per Hour: \$25.87

Effective 11/1/2015 - Supplemental Rate Per Hour: \$26.03

Glazier (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 80% of Journeyman's rate

Supplemental Rate Per Hour: \$31.04

Effective 11/1/2015 - Supplemental Rate Per Hour: \$31.29

(Local #1281)

HEAT & FROST INSULATOR

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 70% of Journeyman's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #12)

HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

House Wrecker - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$21.17
Supplemental Benefit Rate per Hour: \$17.33

House Wrecker - Second Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$22.32
Supplemental Benefit Rate per Hour: \$17.33

House Wrecker - Third Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$23.97
Supplemental Benefit Rate per Hour: \$17.33

House Wrecker - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.53
Supplemental Benefit Rate per Hour: \$17.33

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Ten Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$36.50

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$37.62

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$38.73

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$40.97

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$43.20

Local #580)

IRON WORKER - STRUCTURAL

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$25.48
Supplemental Benefit Rate per Hour: \$46.83

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.08
Supplemental Benefit Rate per Hour: \$46.83

Iron Worker (Structural) - 19 - 36 months

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§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$26.68
Supplemental Benefit Rate per Hour: \$46.83

(Local #40 and #361)

**LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE
LAYER & COMMON)**

(Ratio Apprentice to Journeyman: 1 to 1, 1 to 3)

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First
1000 hours**

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$36.53

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) -
Second 1000 hours**

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$36.53

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) -
Third 1000 hours**

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$36.53

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) -
Fourth 1000 hours**

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Rate Per Hour: \$36.53

(Local #731)

MARBLE MECHANICS

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Cutters & Setters - Second 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 55% of Journeyman's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 65% of Journeyman's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 75% of Journeyman's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 95% of Journeyman's rate

Polishers & Finishers - First 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Polishers & Finishers - Second 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Polishers & Finishers - Third 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Polishers & Finishers - Fourth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$21.39

Supplemental Benefit Rate per Hour: \$18.44

Mason Tender - Second Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$22.54

Supplemental Benefit Rate per Hour: \$18.44

Mason Tender - Third Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$24.29

Supplemental Benefit Rate per Hour: \$18.49

Mason Tender - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$26.95

Supplemental Benefit Rate per Hour: \$18.49

(Local #79)

METALLIC LATHER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Metallic Lather (First Year -Called Prior to 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$29.41

Supplemental Benefit Rate per Hour: \$22.89

Metallic Lather (Second Year - Called Prior to 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$34.01

Supplemental Benefit Rate per Hour: \$24.54

Metallic Lather (Third Year - Called Prior to 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$39.07

Supplemental Benefit Rate per Hour: \$25.69

Metallic Lather (First Year -Called On Or After 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$23.01

Supplemental Benefit Rate per Hour: \$17.95

Metallic Lather (Second Year - Called On Or After 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$28.11

Supplemental Benefit Rate per Hour: \$17.95

Metallic Lather (Third Year - Called On Or After 6/29/11)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$33.21

Supplemental Benefit Rate per Hour: \$17.95

(Local #46)

MILLWRIGHT

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Millwright (First Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.23

Supplemental Benefit Rate per Hour: \$34.06

Millwright (Second Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$32.18

Supplemental Benefit Rate per Hour: \$37.62

Millwright (Third Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$37.13

Supplemental Benefit Rate per Hour: \$41.83

Millwright (Fourth Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$47.03

Supplemental Benefit Rate per Hour: \$48.31

(Local #740)

PAVER AND ROADBUILDER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.05

Supplemental Benefit Rate per Hour: \$17.12

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$28.69

Supplemental Benefit Rate per Hour: \$17.12

(Local #1010)

PAINTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Painter - Brush & Roller - First Year

Effective Period: 7/1/2015 - 10/31/2015

Wage Rate per Hour: \$15.80

Supplemental Benefit Rate per Hour: \$11.88

Effective Period: 11/1/2015 - 6/30/2016

Wage Rate per Hour: \$16.40

Supplemental Benefit Rate per Hour: \$12.13

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2015 - 10/31/2015

Wage Rate per Hour: \$19.75

Supplemental Benefit Rate per Hour: \$15.73

Effective Period: 11/1/2015 - 6/30/2016

Wage Rate per Hour: \$20.50

Supplemental Benefit Rate per Hour: \$15.98

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2015 - 10/31/2015

Wage Rate per Hour: \$23.70

Supplemental Benefit Rate per Hour: \$18.64

Effective Period: 11/1/2015 - 6/30/2016

Wage Rate per Hour: \$24.60

Supplemental Benefit Rate per Hour: \$18.89

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2015 - 10/31/2015

Wage Rate per Hour: \$31.60

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

Supplemental Benefit Rate per Hour: \$24.02

Effective Period: 11/1/2015 - 6/30/2016

Wage Rate per Hour: \$32.80

Supplemental Benefit Rate per Hour: \$24.27

(District Council of Painters)

PAINTER - STRUCTURAL STEEL

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Painters - Structural Steel (First Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #806)

PLASTERER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 40% of Journeyman's rate

Supplemental Rate Per Hour: \$15.76

Plasterer - First Year: 2nd Six Months

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 45% of Journeyman's rate
Supplemental Rate Per Hour: \$16.24

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Rate Per Hour: \$18.21

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$19.29

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Rate Per Hour: \$21.46

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$22.54

(Local #530)

PLUMBER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$14.00
Supplemental Benefit Rate per Hour: \$0.71

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate per Hour: \$14.00

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

Supplemental Benefit Rate per Hour: \$2.96

Plumber - Second Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$23.87

Supplemental Benefit Rate per Hour: \$12.76

Plumber - Third Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$25.97

Supplemental Benefit Rate per Hour: \$12.76

Plumber - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$28.82

Supplemental Benefit Rate per Hour: \$12.76

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$30.22

Supplemental Benefit Rate per Hour: \$12.76

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$42.29

Supplemental Benefit Rate per Hour: \$12.76

(Plumbers Local #1)

**POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR
BUILDING RENOVATION)**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Pointer - Waterproofer, Caulker Mechanic - First Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$25.01

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$4.75

Pointer - Waterproofer, Caulker Mechanic - Second Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$27.25

Supplemental Benefit Rate per Hour: \$9.70

Pointer - Waterproofer, Caulker Mechanic - Third Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$32.24

Supplemental Benefit Rate per Hour: \$12.45

Pointer - Waterproofer, Caulker Mechanic - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate per Hour: \$38.66

Supplemental Benefit Rate per Hour: \$12.45

(Bricklayer District Council)

ROOFER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 35% of Journeyman's Rate

Roofer - Second Year

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 50% of Journeyman's Rate

Roofer - Third Year

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 60% of Journeyman's Rate

Roofer - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016

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

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 (0-6 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: \$6.24

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: \$16.71

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: \$23.00

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$27.02

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.06

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$33.10

Sheet Metal Worker (49-54 Months)

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$35.12

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$37.15

(Local #28)

SIGN ERECTOR

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 35% of Journeyman's rate
Supplemental Rate Per Hour: \$13.18

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$14.95

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 45% of Journeyman's rate
Supplemental Rate Per Hour: \$16.74

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$18.52

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Rate Per Hour: \$24.94

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$26.87

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$29.47

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Rate Per Hour: \$31.46

Sign Erector - Fifth Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$33.43

Sign Erector - Sixth Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$35.41

(Local #137)

STEAMFITTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Steamfitter - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate and Supplemental Per Hour: 40% of Journeyman's rate

Steamfitter - Second Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyman's rate.

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

Steamfitter - Third Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2015 - 6/30/2016

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: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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: 7/1/2015 - 6/30/2016

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: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 80% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

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

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 100% of Journeyman's rate
Supplemental Rate Per Hour: 50% of Journeyman's rate

(Bricklayers District Council)

TAPER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Drywall Taper - First Year

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Drywall Taper - Second Year

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Drywall Taper - Third Year

Effective Period: 7/1/2015 - 6/30/2016
Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #1974)

TILE LAYER - SETTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2015 - 6/30/2016

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: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 40% of Journeyperson's rate

Supplemental Rate Per Hour: \$31.54

Timberperson - Second Year

Effective Period: 7/1/2015 - 6/30/2016

Wage Rate Per Hour: 50% of Journeyperson's rate

Supplemental Rate Per Hour: \$31.54

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Timberperson - Third Year

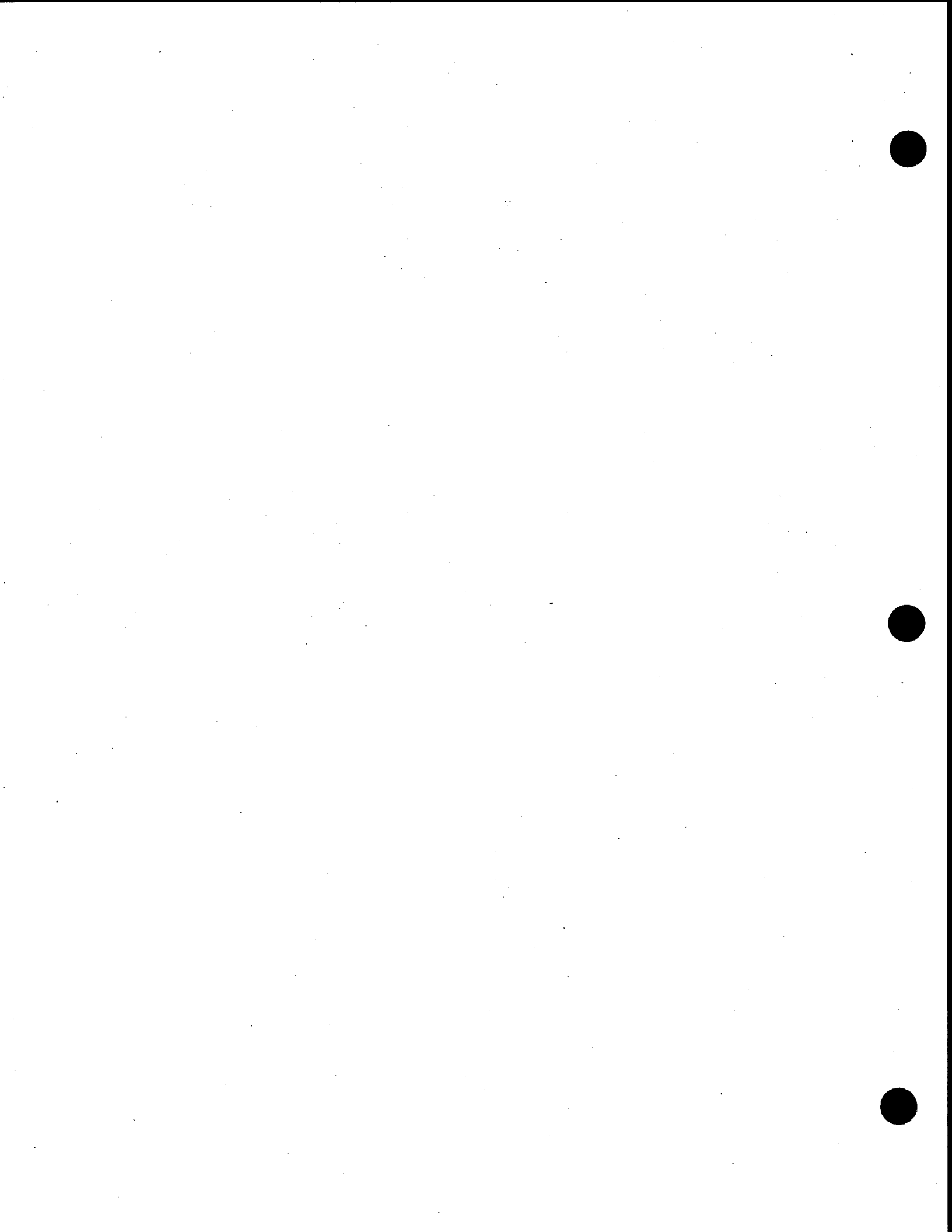
Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$31.54

Timberperson - Fourth Year

Effective Period: 7/1/2015 - 6/30/2016
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$31.54

(Local #1536)







NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

June 01, 2013

**DDC STANDARD GENERAL CONDITIONS
FOR SINGLE CONTRACT PROJECTS**



NEW YORK CITY DEPARTMENT OF
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No Text



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Issue Date - June 01, 2013
Revised - January 15, 2015

**DDC STANDARD GENERAL CONDITIONS
FOR SINGLE CONTRACT PROJECTS**



NEW YORK CITY DEPARTMENT OF
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Issue Date - June 01, 2013
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No Text



NEW YORK CITY DEPARTMENT OF
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**DIVISION 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
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NEW YORK CITY DEPARTMENT OF
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Issue Date - June 01, 2013
Revised - January 15, 2015

NO TEXT



SECTION 01 10 00
SUMMARY

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. Addendum to the General Conditions: These General Conditions include and are supplemented by the Addendum to the General Conditions (the "Addendum"). The Addendum includes the following: (1) schedules referred to in these General Conditions (Schedule A through F), (2) information regarding the applicability of various articles, and (3) amended articles, if any.

1.2 SUMMARY:

- A. This section includes the following:
 - 1. Scope and Intent
 - 2. Provisions Referenced in the Contract
 - 3. Performance of Work During Non-Regular Work Hours (Pursuant to a Change Order)
 - 4. Interruption of Services at Existing Facilities

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SCOPE AND INTENT:

- A. Description of Project: Refer to the Addendum for a description of the project.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 B

- B. LEED: The City of New York will seek U.S. Green Building Council (USGBC) LEED (Leadership in Energy and Environmental Design) certification for this Project as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS" and the Addendum to the General Conditions.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 C

- C. **COMMISSIONING:** The project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, and the Addendum to the General Conditions. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.
- D. **PROGRESS SCHEDULE:** Refer to Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION for requirements of the project.
- E. **COMPLETION OF WORK:** Work to be done under the Contract is comprised of the furnishing of all labor, materials, equipment and other appurtenances, and obtaining all regulatory agency approvals necessary and required to complete the construction work in accordance with the Contract.
- F. **OMISSION OF DETAILS:** All work called for in the Specifications applicable to the Contract but not shown on the Contract Drawings in their present form, or vice versa, is required, and shall be performed by the Contractor as though it were originally delineated or described. The cost of such work shall be deemed included in the total Contract Price.
- G. **WORK NOT IN SPECIFICATIONS OR CONTRACT DRAWINGS:** Work not particularly specified in the Specifications nor detailed on the Contract Drawings but involved in carrying out their intent or in the complete and proper execution of the work, is required, and shall be performed by the Contractor. The cost of such work shall be deemed included in the total Contract Price.
- H. **SILENCE OF THE SPECIFICATIONS:** The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best practice is to prevail and that only the best material and workmanship is to be used and interpretation of the Specifications shall be made upon that basis.
- I. **CONFLICT BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS:** Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated the most expensive way of doing the work unless the Contractor shall have asked for and obtained a decision in writing from the Commissioner before the submission of the bid as to what shall govern.

1.5 CONTRACT DRAWINGS AND SPECIFICATIONS:

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

City of New York
Department of Design and Construction
Division of Public Buildings
- B. **DOCUMENTS FURNISHED TO THE CONTRACTOR -** After the award of the Contract, the Contractor will be furnished with five (5) complete sets of paper prints of all Contract Drawings mentioned in Paragraph A above, as well as a copy of the Specifications.
- C. **ADDITIONAL COPIES** of Drawings and Specifications, when requested, will be furnished to the Contractor if available.



- D. **SUPPLEMENTARY DRAWINGS** - When, in the opinion of the Commissioner, it becomes necessary to more fully explain the work to be done, or to illustrate the work further, or to show any changes which may be required, drawings known as Supplementary Drawings will be prepared by the Commissioner.
- E. **COMPENSATION** - Where Supplementary Drawings entail extra work, compensation therefore to the Contractor shall be subject to the terms of the Contract. The Supplementary Drawings shall be binding upon the Contractor with the same force as the Contract Drawings.
- F. **SUPPLEMENTARY DRAWING PRINTS** - Three (3) copies of prints of these Supplementary Drawings will be furnished to the Contractor.
- G. **COPIES TO SUBCONTRACTORS** - The Contractor shall furnish each of its subcontractors and material suppliers such copies of Contract Drawings, Supplementary Drawings, or copies of the Specifications as may be required for its work.

1.6 **COORDINATION:**

- A. **COORDINATION AND COOPERATION** - The Contractor shall consult and study the requirements of the Contract Drawings and Specifications for all required work, including all work to be performed by trade subcontractors, so that the Contractor may become acquainted with the work of the project as a whole in order to achieve the proper coordination and cooperation necessary for the efficient and timely performance of the work.
- B. **CONTRACTOR TO CHECK DRAWINGS:** - The Contractor shall verify all dimensions, quantities and details shown on the Contract Drawings, Schedules, or other data received from the Commissioner, and shall notify the Commissioner of all errors, omissions, conflicts and discrepancies found therein. Notice of such errors shall be given before the Contractor proceeds with any work. Figures shall be used in preference to scale dimensions and large-scale drawings in preference to small-scale drawings.

1.7 **SHOP DRAWINGS AND RECORD DRAWINGS:**

Refer to Division I Section 01 33 00 – SUBMITAL PROCEDURES and Section 01 78 39 – PROJECT RECORD DRAWINGS for requirements applicable to shop drawings and record drawings.

1.8 **TEMPORARY FACILITIES, SERVICES AND CONTROLS:**

Refer to Division I Section 01 50 00 – TEMPORARY FACILITIES SERVICES AND CONTROLS for the responsibilities of the Contractor.

1.9 **DUST CONTROL:**

The Contractor shall prepare, execute and manage a "Dust Control Plan" for the prevention of the emission of dust from construction related activities in compliance with 15 RCNY 13-01 et. seq.

1.10 **PROVISIONS REFERENCED IN THE CONTRACT:**

- A. **SCHEDULE A** - Various Articles of the Contract refer to requirements set forth in Schedule A of the General Conditions. Schedule A, which is included in the Addendum, sets forth (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the Contract.



- B. EXTENSION OF TIME - Applications for Extensions of Time, as indicated in Article 13 of the Contract, shall be made in accordance with the Rules of the Procurement Policy Board.
- C. PARTIAL PAYMENTS FOR MATERIALS IN ADVANCE OF THEIR INCORPORATION IN THE WORK PURSUANT TO ARTICLE 42 OF THE CONTRACT – In order to better insure the availability of materials, fixtures and equipment when needed for the work, the Commissioner may authorize partial payment for certain materials, fixtures and equipment, prior to their incorporation in the work, but only in strict accordance with, and subject to, all the terms and conditions set forth in the Specifications, unless an alternate method of payment is elsewhere provided in the Specifications for specified materials, fixtures or equipment.
1. The Contractor shall submit to the Commissioner a written request, in quadruplicate, for payment for materials purchased or to be purchased for which the Contractor needs to be paid prior to their actual incorporation in the work. The request shall be accompanied by a schedule of the types and quantities of materials, and shall state whether such materials are to be stored on or off the site.
 2. Where the materials are to be stored off the site, they shall be stored at a place other than the Contractor's premises (except with the written consent of the Commissioner) and under the conditions prescribed or approved by the Commissioner. The Contractor shall set apart and separately store at the place or places of storage all materials and shall clearly mark same "PROPERTY OF THE CITY OF NEW YORK", and further, shall not at any time move any of said materials to another off-site place of storage without the prior written consent of the Commissioner. Materials may be removed from their place of storage off the site for incorporation in the work upon approval of the Resident Engineer.
 3. Where the materials are to be stored at the site, they shall be stored at such locations as shall be designated by the Resident Engineer and only in such quantities as, in the opinion of the Resident Engineer, will not interfere with the proper performance of the work by the Contractor or by other Contractors then engaged in performing work on the site. Such materials shall not be removed from their place of storage on the site except for incorporation in the work, without the approval of the Resident Engineer.
 4. INSURANCE
 - a. STORAGE OFF-SITE – Where the materials are stored off the site and until such time as they are incorporated in the work, the Contractor shall fully insure such materials against any and all risks of destruction, damage or loss including but not limited to fire, theft, and any other casualty or happening. The policy of insurance shall be payable to the City of New York. It shall be in such terms and amounts as shall be approved by the Commissioner and shall be placed with a company duly licensed to do business in the State of New York. The Contractor shall deliver the original and one (1) copy of such policy or policies marked "Fully Paid" to the Commissioner.
 - b. STORAGE ON THE SITE – Where the materials are stored at the site, the Contractor shall furnish satisfactory evidence to the Commissioner that they are properly insured against loss, by endorsements or otherwise, under the policy or policies of insurance obtained by the Contractor to cover losses to materials owned or installed by the Contractor. The policy of insurance shall cover fire and extended coverage against windstorm, hail, explosion and riot attending a strike, civil commotion, aircraft, vehicles and smoke.
 5. All costs, charges and expenses arising out of the storage of such materials, shall be paid by the Contractor and the City hereby reserves the right to retain out of any partial or final payment made under the Contract an amount sufficient to cover such costs, charges and expenses with the understanding that the City shall have and may exercise any and all other remedies at law for the recovery of such cost, charges and expenses. There shall be no



- increase in the Contract price for such costs, charges and expenses and the Contractor shall not make any claim or demand for compensation therefore.
6. The Contractor shall pay any and all costs of handling and delivery of materials, to the place of storage and from the place of storage to the site of the work; and the City shall have the right to retain from any partial or final payment an amount sufficient to cover the cost of such handling and delivery.
 7. In the event that the whole or any part of these materials are lost, damaged or destroyed in advance of their satisfactory incorporation in the work, the Contractor, at the Contractor's own cost, shall replace such lost, damaged or destroyed materials of the same character and quality. The City will reimburse the Contractor for the cost of the replaced materials to the extent, and only to the extent, of the funds actually received by the City under the policies of insurance hereinbefore referred to. Until such time as the materials are replaced, the City will deduct from the value of the stored materials or from any other money due under the Contract, the amount paid to the Contractor for such lost, damaged or destroyed materials.
 8. Should any of the materials paid for the City hereunder be subsequently rejected or incorporated in the work in a manner or by a method not in accordance with the Contract Documents, the Contractor shall remove and replace, at Contractor's own cost, such defective or improperly incorporated material with materials complying with the Contract Documents. Until such materials are replaced, the City will deduct from the value of the stored materials or from any other money due the Contractor, the amount paid by the City for such rejected or improperly incorporated materials.
 9. Payments for the cost of materials made hereunder shall not be deemed to be an acceptance of such materials as being in accordance with the Contract Documents, and the Contractor always retains and must comply with the Contractor's duty to deliver to the site and properly incorporate in the work only materials which comply with the Contract Documents.
 10. The Contractor shall retain any and all risks in connection with the damage, destruction or loss of the materials paid for hereunder to the time of delivery of the same to the site of the work and their proper incorporation in the work in accordance with the Contract Documents.
 11. The Contractor shall comply with all laws and the regulations of any governmental body or agency pertaining to the priority purchase, allocation and use of the materials.
 12. When requesting payment for such materials, the Contractor shall submit with the partial estimate duly authenticated documents of title, such as bills of sale, invoices or warehouse receipts, all in quadruplicate. The executed bills of sale shall transfer title to the materials from the Contractor to the City. (In the event that the invoices state that the material has been purchased by a subcontractor, bills of sale in quadruplicate will also be required transferring title to the materials from subcontractor to the Contractor).
 13. Where the Contractor, with the approval of the Commissioner, has purchased unusually large quantities of materials in order to assure their availability for the work, the Commissioner, at the Commissioner's option, may waive the requirements of Paragraph 12 provided the Contractor furnishes evidence in the form of an affidavit from the Contractor in quadruplicate, and such other proof as the Commissioner may require, that the Contractor is the sole owner of such materials and has purchased them free and clear of all liens and other encumbrances. In such event, the Contractor shall pay for such materials and submit proof thereof, in the same manner as provided in Paragraph 12 hereof, within seven (7) days after receipt of payment therefore from the Comptroller. Failure on the part of the Contractor to submit satisfactory evidence that all such materials have been paid for in full, shall preclude the Contractor from payments under the Contract.



14. The Contractor shall include in each succeeding partial estimate requisition a summary of materials stored which shall set forth the quantity and value of materials in storage, on or off the site, at the end of each preceding estimate period; the amount removed for incorporation in the work; the quantity and value of materials delivered during the current period and the total value of materials on hand for which payment thereof will be included in the current payment estimate.
15. Upon proof to the satisfaction of the Commissioner of the actual cost of such materials and upon submission of proper proof of title as required under Paragraph 12 or Paragraph 13 hereof, payment will be made therefore to the extent of 85%, provided however, that the cost so verified, established and approved shall not exceed the estimated cost of such materials included in the approved detailed breakdown estimate submitted in accordance with Article 41 of the Contract; if it does, the City will pay only 85% approved estimated cost.
16. Upon the incorporation in the work of any such materials, which have been paid for in advance of such incorporation in accordance with the foregoing provisions, payment will be made for such materials incorporated in the work pursuant to Article 42 of the Contract, less any sums paid pursuant to Paragraph 15 herein.

D. **MOBILIZATION PAYMENT** – A line item for mobilization shall be allowed on the Contractor's Detailed Bid Breakdown submitted in accordance with Article 41 of the Contract. The Mobilization Payment is intended to include the cost of required bonds, insurance coverage and/or any other expenses required for the initiation of the Contract Work. All costs for mobilization shall be deemed included in the total Contract Price. The Detailed Bid Breakdown shall reflect, and the Mobilization Payment shall be made, in accordance with the following schedule:

Contract Amount	Percent	Mobilization
Less than - \$ 50,000	x 0	= 0
\$ 50,000 - \$ 100,000	x	= \$ 6,000
\$ 100,001 - \$ 500,000	x 6	= \$ 6,000 (min) - \$ 30,000 (max)
\$ 500,000 - \$ 2,500,000	x 5	= \$ 30,000 (min) - \$ 125,000 (max)
Over - \$ 2,500,000	x 4	= \$ 125,000 (min) - \$ 300,000 (max)

The Contractor may requisition for one-half (1/2) of the Mobilization Payment upon satisfactory completion of the following:

1. Installation of any required field office(s).
2. Submission of all required insurance certificates and bonds.
3. Approval by the Department of Design and Construction of the coordinated progress schedule for the project and the Contractor's Shop Drawing schedule.

The remaining balance of the Mobilization Payment may be requisitioned only after 10 percent (10%) of the Contract price, exclusive of the total amount of Mobilization Payments made or to be made hereunder, shall have been approved for payment.

E. **ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:** The Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel in Non-Road Vehicles, and the implementation of Best Available Technology (BAT), as set forth in Article 5.4 of the Contract. Such reports shall be submitted in accordance with the schedule, format, directions and procedures established by the Commissioner.



1.11 PERFORMANCE OF WORK DURING NON-REGULAR WORK HOURS:

- A. **NON-REGULAR WORK HOURS:** The Commissioner may issue a change order in accordance with Article 25 of the Contract which (1) directs the Contractor to perform the Work, or specific components thereof, during other than regular work hours (i.e., evenings, weekends and holidays), and (2) provides compensation to the Contractor for costs in connection with the performance of Work during other than regular work hours. The Commissioner may issue a change order if a delay has occurred and such delay is not the fault of the Contractor, or if the work is of such an important nature that delay in completing such work would result in serious disadvantage to the public.
- B. **PROCEDURE:** The Contractor shall (1) obtain whatever permits may be required for performance of the work during other than regular business hours, and (2) pay all necessary fees in connection with such permits. In addition, if directed by the Commissioner, the Contractor shall make immediate application to the Commissioner of the Department of Labor, State of New York, for dispensation in accordance with Subdivision 2 of Section 220 of the Labor Law.

1.12 INTERRUPTION OF SERVICES AT EXISTING FACILITIES:

- A. **EVENING AND WEEKEND WORK** - Where performance of the Work requires the temporary shutdown(s) of services, such shutdown(s) shall be made at night or on weekends or at such times that will cause no interference with the established routines and operations of the facility in question.
- 1 Where weekend or evening work is required due to unavoidable service shutdowns, such work shall be performed at no extra cost to the City. Components of the Work that must be performed during other than regular work hours are indicated in the Drawings and/or the Specifications.
- B. **INTERRUPTION OF EXISTING FACILITIES:**
- 1 The Contractor shall not interrupt any of the services of the facility nor interfere with such services in any way without the permission of the Commissioner. Such interruption or interferences shall be made as brief as possible, and only at such time stated.
 - 2 Under no circumstances shall the Contractor, its subcontractors, or its workers, be permitted to use any part of the project as a shop, without the permission of the Commissioner.
 - 3 Unnecessary noise shall be avoided at all times and necessary noise shall be reduced to a minimum.
 - 4 Toilet facilities, water and electricity must be operational at all times (i.e. 24/7). No services of the facility can be interrupted in any way without the permission of the Commissioner. Careful coordination of all work with the Resident Engineer must be done to maintain the operational level of the project personnel at the facility.
 - 5 The Contractor shall schedule the work to avoid noise interference that will affect the normal functions of the facility. In particular, construction operations producing noises that are objectionable to the functions of the facility must be scheduled at times of day or night, day of the week, or weekend, which will not interfere with personnel at the facility. Any additional cost resulting from this scheduling shall be borne by the Contractor.



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- 6 The Contractor shall arrange to work continuously, including evening and weekend hours, if required, to assure that services will be shut down only during the time actually required to make the necessary connections to the existing facility.
- 7 The Contractor shall give ample written notice in advance to the Commissioner and personnel at the facility of any required shutdown.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 10 00

SUMMARY
01 10 00 -8



SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- C. COMMISSIONING: Refer to the Addendum to identify whether this project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.

1.2 SUMMARY:

- A. This Section includes administrative provisions for coordinating construction operations on the Project including without limitation the following.
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
- B. This section includes the following:
 - 1. Definitions
 - 2. Coordination
 - 3. Submittals
 - 4. Administrative and Supervisory Personnel
 - 5. Project Meetings
 - 6. Requests for Interpretation (RFI's)
 - 7. Correspondence
 - 8. Contractor's Daily Reports
 - 9. Alternate and Substitute Equipment
- C. RELATED SECTIONS: include without limitation the following:
 - 1. Section 01 10 00 SUMMARY
 - 2. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
 - 3. Section 01 33 00 SUBMITTALS
 - 4. Section 01 35 26 SAFETY REQUIREMENTS
 - 5. Section 01 73 00 EXECUTION REQUIREMENTS
 - 6. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL



7. Section 01 77 00 PROJECT CLOSEOUT PROCEDURES

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 COORDINATION:

- A. Coordination: The Contractor shall coordinate its construction operations, including those of its subcontractors, with other entities to ensure the efficient and orderly installation of each part of the Work. The Contractor shall coordinate the various operations required by different Sections of the Specifications that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence in order to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. The Contractor shall prepare memoranda for distribution to its subcontractors and other involved entities, outlining special procedures required for coordination. Such memoranda shall include required notices, reports, and meeting minutes as applicable.
- C. Administrative Procedures: The Contractor shall coordinate scheduling and timing of required administrative procedures with other construction activities and activities of its subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include without limitation the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Installation and removal of temporary facilities and controls.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Pre-installation conferences..
 - 6. Startup and adjustment of systems.
 - 7. Project closeout activities.
- D. Conservation: The Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.



- E. **Salvaged Items, Material and/or Equipment:** The Specifications may identify certain items, materials or equipment which must be salvaged by the Contractor and handled or disposed of as directed. The Contractor shall comply with all directions in the Specifications regarding the salvaging and handling of identified items, material or equipment.

1.5 SUBMITTALS:

- A. Submit shop drawings, product data, samples etc. in compliance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. **Coordination Drawings:** The Contractor shall prepare applicable Coordination Drawings in compliance with the requirements for Coordination Drawings in Section 01 33 00, SUBMITTAL PROCEDURES.
- C. **Safety Plan** in compliance with Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES.
- D. **Waste Management Plan** in compliance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- E. **Key Personnel Names:** Within 15 days after the Notice to Proceed, the Contractor shall submit a list of key personnel assignments of the Contractor and its subcontractors, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in case of the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
 2. In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work. Include special personnel required for coordinating all operations by its subcontractors.

1.6 PROJECT MEETINGS:

- A. **General:** The Resident Engineer will hold regularly scheduled construction progress meetings at the site, at which time the Contractor and appropriate subcontractors shall have their representatives present to discuss all details relative to the execution of the work. The Resident Engineer shall preside over these meetings.
1. **Agenda:** Prior to each meeting, the Resident Engineer will consult with the Contractor and will prepare an agenda of items to be discussed. In general, after informal discussion of any item on the agenda, the Resident Engineer will summarize the discussion in a brief written statement, and the Contractor will then dictate a brief statement for the record.
 2. **Coordination:** In addition to construction progress meetings called by the Resident Engineer, the Contractor shall hold regularly scheduled meetings for the purpose of coordinating; expediting and scheduling the work in accordance with the master coordinated Job Progress Chart. The Contractor and its subcontractors, material suppliers or vendors whose presence is necessary, are required to attend. These meetings may, at the discretion of the Contractor, be held at the same place and immediately following the project meetings held by the Resident Engineer. Minutes of these meetings shall be recorded, typed and printed by the Contractor and distributed to all parties concerned.
- B. **PRECONSTRUCTION KICK-OFF MEETING:**
1. The Resident Engineer will schedule a preconstruction kick-off meeting either at DDC's main office or at the Project site to review responsibilities and personnel assignments and clarify the



role of each participant. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.

2. Attendees: Authorized representative of the Client Agency; Design Consultant; the Contractor and its superintendents, subcontractor(s) and their superintendent(s); LEED sub-consultant and Commissioning Authority /Agent (CxA) as applicable and other concerned parties. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Contract Work.
3. Agenda: Includes without limitation the following as applicable:
 - a. Establishing construction schedule
 - b. Schedule for regular construction meetings
 - c. Phasing
 - d. Critical work sequencing and long-lead items
 - e. Designation of key personnel and their duties
 - f. Reviewing Application for Payment and Change Order Procedures
 - g. Procedures for Requests for Information (RFIs.)
 - h. Review Permits and Approval requirements
 - i. Review all recent Administrative Code reporting requirements relating to the project, (i.e. LL 77, LL86 etc.)
 - j. Procedures for testing and inspecting
 - k. Reviewing special conditions at the Project site
 - l. Distribution of the Contract Documents
 - m. Submittal procedures
 - n. Safety Procedures
 - o. LEED requirements
 - p. Commissioning Requirements
 - q. Preparation of Record Documents
 - r. Historic Treatment requirements
 - s. Use of the premises
 - t. Work restrictions
 - u. Client Agency occupancy requirements
 - v. Responsibility for temporary facilities, services and controls
 - w. Construction Waste Management and Disposal
 - x. Indoor Air Quality Management Plan
 - y. Dust Mitigation Plan
 - z. Office, work, and storage areas
 - aa. Equipment deliveries and priorities
 - bb. Security
 - cc. Progress cleaning
 - dd. Working hours



C. CONSTRUCTION PROGRESS MEETINGS:

1. The Resident Engineer will schedule and conduct construction progress meetings at bi-weekly intervals or as otherwise determined. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.
2. Attendees:
 - a. Design Consultant and applicable sub-consultants
 - b. Client Agency Representative
 - c. Representatives from the Contractor, sub-contractor(s), suppliers or other entities involved in the current progress, planning, coordination or future activities of the Work
 - d. Other appropriate DDC personnel, DDC consultants and concerned parties
3. Agenda: Includes without limitation the following:
 - a. Review the Construction Schedule and progress of the Work. Determine if the Work is on time, ahead of schedule or behind schedule. Determine actions to be taken to maintain or accelerate the schedule
 - b. Review and approve prior meeting minutes and follow up open issues
 - c. Coordinate work between each subcontractor
 - d. Sequence of Operations
 - e. Status of submittals, deliveries and off-site fabrication
 - f. Status of inspections and approvals by governing agencies
 - g. Temporary facilities and controls
 - h. Review Site Safety
 - i. Quality and work standards
 - j. Field observations
 - k. Status of correction of deficient items
 - l. RFI's
 - m. Pending changes
 - n. Status of outstanding Payments and Change Orders
 - o. LEED requirements including Construction Waste Management, Indoor Air Quality Plan, Dust Mitigation and Commissioning
 - p. Status of Administrative Code reporting requirements related to the project

1.7 REQUESTS FOR INFORMATION (RFI):

- A. Procedure: Immediately on discovery of the need for information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, the Contractor shall prepare and submit an RFI in the form specified by the Resident Engineer.
 1. RFI shall originate with the Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFI in a prompt manner to the Resident Engineer so as to avoid delays in Contractor's work or work of its subcontractors.
 3. RFI Log: The Contractor shall prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the Resident Engineer.



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4. On receipt of responses and action to the RFI, the Contractor shall update the RFI log and immediately distribute the RFI response to affected parties. Review response(s) and notify the Resident Engineer immediately if the Contractor disagrees with response(s).

1.8 CORRESPONDENCE:

Copies of all correspondence to DDC shall be sent directly to the Resident Engineer at the job site.

1.9 CONTRACTOR'S DAILY REPORTS:

The Contractor shall prepare and submit Daily Construction Progress Reports'as outlined in Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 31 00



**SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION**

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for establishing an effective base line schedule for the project and documenting the progress of construction during performance of the Work by developing, revising as necessary, various documents including but not limited to the following:

1. Baseline Construction Schedule.
2. Composite Schedule for entire project
3. Recovery Composite Schedule
4. Revised and/or updated Composite Schedule
5. Submittals Schedule.
6. Daily construction reports.
7. Material location reports.
8. Field condition reports.
9. Special reports.

- B. RELATED SECTIONS: include without limitation the following:

1. Section 01 10 00 SUMMARY
2. Section 01 32 22 PHOTOGRAPHIC DOCUMENTATION
3. Section 01 33 00 SUBMITTAL PROCEDURES
4. Section 01 40 00 QUALITY REQUIREMENTS

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.



- C. **Baseline Construction Schedule:**
A horizontal bar chart type schedule (Microsoft Project OR similar program) listing all the activities and their duration for entire contract duration OR construction period, including logical ties and interrelations between the activities necessary for the timely and successful completion of the project. Critical path activities shall be clearly marked. The Baseline construction schedule is a preliminary schedule that must be reviewed and approved by the Resident Engineer.
- D. **Composite Schedule:**
A composite horizontal bar chart type schedule (Microsoft Project OR similar program) listing all activities to be performed by the Contractor and its subcontractors, the duration of each activity including logical ties and interrelations between activities, and the sequence of each of necessary activities for the timely and successful completion of the project within the stipulated contract duration. Critical path activities shall be clearly marked. The Composite schedule must be signed and submitted by the Contractor within thirty (30) calendar days after the date established for commencement of the Contract, unless otherwise directed. The Composite Schedule must be reviewed and approved by the Resident Engineer.
- E. **Recovery Composite Schedule:** A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order.

A Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions. In such case special attention must be given to keep the delays as minimum as possible and must establish the nature of efforts such as extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its subcontractors, consultants, clients, end users and/or other concerned parties.

Such schedule must be prepared and submitted within Five (5) calendar days of request by the Resident Engineer. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.
- F. **Revised and/or Updated Composite Schedule:**

A Baseline construction schedule OR Composite Schedule OR Recovery Composite Schedule for the project that shows the actual duration of all the completed activities, including duration of and the reasons for delays, if any has occurred, AND revisions to all remaining activities of the Contractor and its subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined activities. Any such revisions should be shown on the row just below the approved schedule of the respective activity so that revisions can be compared.

The Revised and/or updated Composite Schedule must be reviewed and approved by the Resident Engineer.
- G. **Activity:** A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
- H. **Event:** The starting or ending point of an activity.
- I. **Fragment:** A part of the activity that breaks down activities into smaller activities for greater detail.
- J. **Milestone:** A key or critical point in time for reference or measurement.
- K. **Network Diagram:** A graphic diagram of a network schedule, showing activities and activity relationships.



PART II – PRODUCTS

2.1 BASELINE CONSTRUCTION SCHEDULE:

- A. The Contractor shall prepare a Baseline horizontal bar-chart-type construction schedule for the project. Submit the Baseline Construction Schedule to the Resident Engineer within (15) fifteen calendar days after the date established for commencement of the Contract, unless directed otherwise. The Baseline Schedule must be reviewed and approved by the Resident Engineer.
1. Provide a separate time bar for each significant construction activity. Coordinate each activity on the schedule with other construction activities for proper interrelationship & sequence.
 2. Duration: The duration of each activity on the schedule besides installation must clearly show required duration of filing for permits, inspections, testing, approvals, shop drawings and materials submittals and approvals, fabrication, delivery, phasing for each construction activity.
 3. Schedule shall be time-scaled in not more than weekly increments, with the dates of the first day (Monday) of each week indicated.
 4. Completion of all the project activities shall be indicated in advance of the date established for completion of the Contract, allowing time for required inspection and punch list work.
 5. Clearly show time bar for all the tasks, to be completed before start of physical work of scheduled activities, including but not limited to obtaining required permit, subcontractor approval, submission and approval of shop drawings, field verification, time for fabrication and delivery, testing of materials and/or samples, preparation and approval of mock-up sample, curing, pre-testing of soil, pre-testing of equipment - including start up, testing & adjusting, filing for inspection by regulatory agencies, training, final use, etc. required to maintain orderly progress of the activity. A special consideration must be given to those activities requiring early approvals because of long lead-time for manufacture or fabrication.
 6. Phasing: Arrange all activities in proper sequence to reflect requirements for phased completion, work by other entities, work by the City, City furnished items, coordination with existing work, limitations arising due to continued occupancies, non-interruptible services, partial completion for occupancy, site restrictions, provisions for future work, seasonal variations, environmental control, and similar conditions of the project.
 7. Arrange all activities and/or show interrelationship and logical sequence of all activities, determine and mark all critical path activities including any phasing reflecting actual project condition.
 8. Keep at least two blank horizontal bars between all activities for recording actual progress and submitting Revised Schedule as defined in Sub-Section 1.3 G
 9. If necessary a new revised schedule shall be prepared in the same manner as outlined above.

2.2 COMPOSITE SCHEDULE FOR THE PROJECT:

- A. The Contractor shall prepare a Composite Schedule based on the approved Baseline Schedule. Such schedule shall indicate graphically and chronologically the start and completion of each and every activity, including all the pre-activity and post activity tasks. Keep at least two blank horizontal bars between all activities for recording actual progress and/or revisions.
1. If necessary the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Composite Schedule. The Composite Schedule must be finalized and signed by the Contractor within (30) thirty calendar days after the date established for commencement of the Contract, unless directed otherwise. The Composite Schedule must be reviewed and approved by the Resident Engineer.



2.3 RECOVERY COMPOSITE SCHEDULE:

- A. A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order. A Recovery Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions, must be developed and submitted within (5) five calendar days of the request by the Resident Engineer. Such Recovery Composite Schedule shall include all information as defined in Article 1.3 F and shall be prepared in the same manner as outlined in Sub-Sections 2.1 and 2.2. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.

2.4 REVISED AND/OR UPDATED COMPOSITE SCHEDULE:

- A. The Contractor shall revise and/or update the approved Composite Schedule as directed. The Revised schedule shall be prepared in the same manner as outlined above in Sub-Sections 2.1 and 2.2.
- B. The Contractor shall mark actual progress, delays, work stoppage etc. in the row just below the approved schedule for the respective activity so that revisions can be compared.
- C. Such schedule also shall indicate graphically and chronologically any revisions to the start and completion of the remaining activities including revisions to all the pre-activity and post activity tasks for all subcontractors.
- D. If necessary, the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Revised Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Schedule. Such schedule must be prepared and submitted by the Contractor within Five (5) calendar days of request by the Resident Engineer. The Revised Composite Schedule must be reviewed and approved by the Resident Engineer.

2.5 SUBMITTALS SCHEDULE:

- A. Preparation: The Contractor shall submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
- B. SCHEDULE F: Schedule F sets forth all submittal requirements for shop drawings and material samples. Schedule F is included in the Addendum. At the kick-off meeting, the Contractor must review this Schedule with the Resident Engineer and the Design Consultant. Within 10 days after the kick-off meeting, the Contractor must complete information on Schedule F concerning the submission date, the required delivery date and the fabrication time. For all required submittals of shop drawings and material samples, the Schedule F provided by the Contractor must indicate a submission date which is at least 20 business days prior to the date of the manufacture of the item or materials to be installed. In addition, if so directed by the Commissioner, the Schedule F provided by the Contractor must indicate a submission date for shop drawings and/or material samples of specified items or materials which is within 60 business days after the kick-off meeting. In the event of any conflict between the Specifications and Schedule F, Schedule F shall take precedence; provided, however, in the event of an omission from Schedule F (i.e., Schedule F omits either a reference to or information concerning a submittal requirement which is set forth in the Specifications), such omission from Schedule F shall have no effect and the Contractor's submittal obligation, as set forth in the Specifications, shall remain in full force and effect.
- C. Review: The Resident Engineer will review the Schedule F submitted by Contractor. Upon acceptance, the Resident Engineer will date and sign the schedule as approved and transmit it to the Consultant, Contractor and others within DDC as he/she deems appropriate.



2.6 REPORTS:

- A. Daily Construction Reports: The Contractor shall submit to the Resident Engineer written Daily Construction Reports at the end of each work day, recording basic information such as the date, day, weather conditions, and contract days passed, remaining contract duration/days and the following information concerning the Project.

Information: The reports shall be prepared by the Contractor's Superintendent and shall bear the Contractor's Superintendents signature. Each report shall contain the following information:

1. List of name of Contractor, subcontractors, their work force in each category, and details of activities performed.
2. The type of materials and/or major equipment being installed by the Contractor and/or by each subcontractor.
3. The major construction equipment being used by the Contractor and/or subcontractors.
4. Material and Equipment deliveries.
5. High and low temperatures and general weather conditions.
6. Accidents.
7. Meetings and significant decisions.
8. Unusual events.
9. Stoppages, delays, shortages, and losses.
10. Meter readings and similar recordings
11. Emergency procedures.
12. Orders and/or requests of authorities having jurisdiction.
13. Approved Change Orders received and implemented.
14. Field Orders and Directives received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial Completions and occupancies.
18. Substantial Completions authorized.

NOTE: If there is NO ACTIVITY at site, a daily report indicating so and the reason for no activity at the site must be submitted.

- B. Material Location Reports: The contractor shall submit a Material Location Report at weekly OR monthly intervals as determined and established by the Resident Engineer. Such report shall include a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit a Request For Information (RFI) form with a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.7 SPECIAL REPORTS:

- A. Accident report, incident report, special condition report for the conditions out of control of any party involved with the project effecting project progress, explaining impact on the project schedule and cost if any.

PART III – EXECUTION (Not Used)
END OF SECTION 01 32 00



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CONSTRUCTION PROGRESS DOCUMENTATION

01 32 00 - 6



SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 33

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract]

1.2 SUMMARY:

- A. This Section includes the following:
1. Photographic Media
 2. Construction Photographs
 3. Pre-construction Photographs
 4. Periodic Construction Progress Photographs
 5. Special Photographs
 6. DVD Recordings
 7. Final Completion Construction Photographs
- B. RELATED SECTIONS: include without limitation the following:
1. Section 01 10 00 SUMMARY
 2. Section 01 33 00 SUBMITTAL PROCEDURES
 3. Section 01 35 91 HISTORIC TREATMENT PROCEDURES
 4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
 5. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS
- C. PHOTOGRAPHER - The Contractor shall employ and pay for the services of a professional photographer who shall take photographs showing the progress of the work for all Contracts.

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SUBMITTALS:

- A. Qualification Data: For photographer.



- B. Key Plan: With each Progress Photograph Submittal include a key plan of Project site and building with notation of vantage points marked for location and direction of each image. Indicate location, elevation or story of construction. Include same label information as corresponding set of photographs.
- C. Construction Progress Photograph Prints: Take Progress Photographs bi-weekly and submit four color prints of each photographic view for each trade to the Resident Engineer. Such photographs shall be included in each monthly progress report or as otherwise directed by the Resident Engineer.
- D. Construction Photograph Negatives: Submit a complete set of photographic negatives in individually protected negative sleeves with each submittal of prints. Identify negatives with label matching photographic prints.
- E. Digital Images: If Digital Media is used, submit a complete set of digital color image electronic files on CD-ROM with each submittal of prints. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, un-cropped.

1.5 QUALITY ASSURANCE:

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.6 COORDINATION:

- A. The Contractor and its subcontractor(s) shall cooperate with the photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.7 COPYRIGHT:

- A. The Contractor shall include the provisions set forth below in the agreement between the Contractor and the Photographer who will provide the construction photographs described in this section. The Contractor shall submit to the Resident Engineer a copy of its agreement with the Photographer.
- B. Any photographs, images and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to this Agreement, shall upon their creation become the exclusive property of the City.
- C. Any photographs, images and/or other materials provided pursuant to this Agreement ("Copyrightable Materials") shall be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Photographer hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Photographer shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Photographer for no purpose other than in the performance of this Agreement without the prior written permission of the City. The Department may grant the Photographer a license to use the Copyrightable Materials on such terms as determined by the Department and set forth in the license.
- D. The Photographer acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Photographer shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.



- E. The Photographer represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright Law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Photographer has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Agreement, copies of which shall be provided to the City.

PART II – PRODUCTS

2.1 PHOTOGRAPHIC MEDIA:

- A. Photographic Film: Medium format, 2-1/4 by 2-1/4 inches (60 by 60 mm).
- B. Digital Images:
1. Construction Progress Images: Color images in JPEG format with minimum sensor size of 1.3 megapixels.
 2. Presentation Quality Images: Provide Color images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 with 8"x10" original capture at 300 dpi or greater.
- C. Prints:
1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte color prints on single-weight commercial-grade stock paper, with 1inch wide margins and punched for standard 3-ring binder.
 2. Identification: On the front of each photograph affix a label in the margin with Project name and date photograph was taken. On the back of each print, provide an applied label or rubber-stamped impression with the following information:
 - a. Project Contract I.D. Number.
 - b. Project Contract Name.
 - c. Name of Contractor. (and Subcontractor Trade Represented)
 - d. Subject of Image Taken.
 - e. Date and time photograph was taken if not date stamped by camera.
 - f. Description of vantage point, indicating location, direction and other pertinent information.
 - g. Unique sequential identifier.
 - h. Name and address of photographer.

PART III – EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS:

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
1. Maintain key plan with each set of construction photographs that identifies each photographic location and direction of view.
- B. Film Images:
1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.



2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Commissioner.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 1. Date and Time: Include date and time in filename for each image.
 2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Commissioner.

3.2 PRE-CONSTRUCTION & PRE-DEMOLITION PHOTOGRAPHS:

- A. Before commencement of Contract work at the site, take color photographs of Project site and surrounding properties, including existing structures or items to remain during construction, from different vantage points, as directed by the Resident Engineer.
 1. Flag applicable excavation areas and construction limits before taking construction photographs.
 2. Take photographs of minimum eight (8) views to show existing conditions adjacent to property before starting the Work.
 3. Take applicable photographs of minimum eight (8) views of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required or directed by the Resident Engineer to record settlement or cracking of adjacent structures, pavements, and improvements.
- B. Demolition Operations: Take photographs as directed by the Resident Engineer of minimum of eight (8) views each before commencement of demolition operations, at mid-point of operations and at completion of operations.
- C. Pre-Demolition Photographs: Take archival quality color photographs, to include all exterior building facades, of all structures at the Project site designated to be fully demolished or removed in compliance with NYC Building Code requirements. Submit four (4) complete sets of pre-demolition photographs, in the format specified herein, to the Resident Engineer for submission to the Department of Buildings.

3.3 PERIODIC CONSTRUCTION PROGRESS PHOTOGRAPHS:

- A. Take photographs of minimum eight (8) views bi-weekly as directed by the Resident Engineer of construction progress for each contract trade. Select vantage points to show status of construction and progress since last photographs were taken.

3.4 SPECIAL PHOTOGRAPHS:

- A. The photographer shall take special photographs of subject matter or events as specified in other sections of the Project Specifications from vantage points specified or as otherwise directed by the Resident Engineer.
- B. Historical Elements: As required in Section 01 35 91, HISTORIC TREATMENT PROCEDURES, for Contract work at designated landmark structures or sites the photographer, as specified and required by individual sections of the Contract documents or at the direction of the Commissioner, shall take images of existing elements scheduled to be removed for replacement, repair or replication in quantities as directed, including post-construction photographs of completed work as directed by the Commissioner.



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1. Take Presentation Quality Photographs of designated landmark structures as directed by the Commissioner for submission to the New York City Landmarks Preservation Commission. Provide a minimum of four color photographic prints of each view as directed.

3.5 DVD RECORDING:

- A. When DVD Recording of Demonstration and Training sessions is required for Non-Commissioned projects the Contractor shall provide the services of a Videographer as indicated in Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

3.6 FINAL COMPLETION CONSTRUCTION PHOTOGRAPHS:

- A. Take color photographs of minimum eight (8) unobstructed views of the completed project or project and site, as directed by the Commissioner and after all scaffolding, hoists, shanties, field offices or other temporary work has been removed and final cleaning is done after date of Substantial Completion for submission as Project Record Documents. Submit four (4) sets of each view of Presentation Quality photographic prints including negatives and/or digital images electronic file.

END OF SECTION 01 32 33



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**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART I – GENERAL:

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Coordination Drawings, Catalogue Cuts, Material Samples and other submittals required by the Contract Documents.
- B. Review of submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such submittals, nor from responsibility for complying with the requirements of the Contract.
- C. Responsibility of the Contractor: The approval of Shop Drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the work, nor of the furnishing of materials or work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings shall not be construed as approving departures from the Contract Drawings, Supplementary Drawings or Specifications.
- D. This Section includes the following:
1. Definitions
 2. Submission Procedures
 3. Coordination Drawings
 4. LEED Submittals
 5. Ultra Low Sulfur Diesel Fuel Reporting
 6. Construction Photographs and DVD Recordings
 7. As-Built Documents

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION |
| D. | Section 01 32 33 | PHOTOGRAPHIC DOCUMENTATION |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |
| G. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS |

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or



combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. **Submittals:** Written and graphic information that requires responsive actions and includes without limitation all shop drawings, product data, letters of certification, tests and other information required for quality control and as required by the Contract Documents.
- D. **Informational Submittals:** Written information that does not require responsive action. Submittals may be rejected for non-compliance with the Contract.
- E. **Shop Drawings:** Include drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, except for coordination drawings, specifically prepared for the project by the Contractor or any subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the work shall be fabricated and/or installed.
- F. **Coordination Drawings:** As required in Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.
- G. **Product Data and Quality Assurance Submittals:** Includes manufacturer's standard catalogs, pamphlets and other printed materials including without limitation the following:
 - 1. Catalogue and Product specifications
 - 2. Installation instructions
 - 3. Color charts
 - 4. Catalog cuts
 - 5. Rough-in diagrams and templates
 - 6. Wiring diagrams
 - 7. Performance curves
 - 8. Operational range diagrams
 - 9. Mill reports
 - 10. Design data and calculations
 - 11. Certification of compliance or conformance
 - 12. Manufacturer's instructions and field reports

1.5 COORDINATION DRAWINGS:

- A. The Contractor shall provide reproducible Coordination Drawing(s) of the reflective ceiling showing the integration of all applicable contract work, including general construction work as well as trade work (Plumbing, HVAC, and Electrical) to be performed by subcontractors. The Coordination Drawing(s) shall include, without limitation, the following information:
 - 1. General Construction work showing the reflective ceiling plan including starting points, ceiling and beam soffits elevations, ceiling heights, roof openings, etc.
 - 2. HVAC Contract work showing ductwork, heating and sprinkler piping, location of grilles, registers etc. and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column centerlines and/or walls.
 - 3. Plumbing Contract work including piping, valves, cleanouts etc., indicating locations and elevations and shall indicate the necessary access doors.
 - 4. Electrical Contract work indicating fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.
- B. The Contractor shall issue the completed Coordination Drawing(s) to the Resident Engineer for his/her review. The Resident Engineer may call as many meetings as necessary with the Contractor, including



attendance by applicable subcontractors, and may call on the services of the Design Consulting where necessary, to resolve any conflicts that become apparent.

- C. Upon resolution of any conflicts, the Contractor shall provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) shall be signed and dated by the Contractor to indicate acceptance of the arrangement of the work.
- D. A reproducible copy of the Master Coordination Drawing(s) shall be provided by the Contractor to each of the appropriate subcontractor(s), the Resident Engineer and the Design Consultant for information.
- E. Shop Drawings shall not be submitted prior to acceptance of the final coordinated drawings and shall be prepared in accordance with the Master Coordination Drawing(s). No work will be permitted without accepted Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

1.6 SUBMITTAL PROCEDURES:

- A. Refer to Section 01 35 03 GENERAL MECHANICAL REQUIREMENTS and Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS for additional submittal requirements involving electrical and mechanical work or equipment of any nature called for the project.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activities, with the Submittal Schedule specified in Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - 3. The Commissioner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: The Submittals Schedule is set forth in Schedule F, which is included in the Addendum.
- D. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Design Consultant.
 - 3. Include the following minimum information on label for processing and recording action taken:
 - a. Project name, DDC Project Number and Contract Number
 - b. Date
 - c. Name and address of Design Consultant
 - d. Name and address of Contractor
 - e. Name and address of subcontractor
 - f. Name and address of supplier
 - g. Name of manufacturer
 - h. Submittal number or other unique identifier, including revision identifier
 - i. Number and title of appropriate Specification Section
 - j. Drawing number and detail references, as appropriate
 - k. Location(s) where product is to be installed, as appropriate
 - l. Other necessary identification
- E. Transmittal:
 - 1. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form in triplicate. Transmittals received from sources other than the



Contractor will be returned without review. Re-submission of the same drawings or product data shall bear the original number of the prior submission and the original titles.

2. Transmittal Form: Provide locations on form for the following information:

- a. Project name, DDC Project number and Contract Number
- b. Date
- c. Destination (To:)
- d. Source (From:)
- e. Names of Contractor, subcontractor, manufacturer, and supplier
- f. Category and type of submittal
- g. Submittal purpose and description
- h. Specification Section number and title
- i. Drawing number and detail references, as appropriate
- j. Transmittal number, numbered consecutively
- k. Submittal and transmittal distribution record
- l. Remarks
- m. Signature of transmitter

F. Shop Drawings:

1. Procedures for Preparing, Forwarding, Checking and Returning all Shop Drawings shall be, generally, as follows:
 - a. The Contractor shall make available to its subcontractors the necessary Contract Documents and shall instruct such subcontractor to determine dimensions and conditions in the field, particularly with reference to coordination between the trade subcontractors. The Contractor shall direct its subcontractors to prepare Shop Drawings for submission to the Design Consultant in accordance with the requirements of these General Conditions. The Contractor shall also direct its subcontractors to "Ring Up" corrections made on all re-submissions for approval, so as to be readily seen, and that the symbol "sub" be used to identify the source of the correction or information that has been added.

The Contractor shall:

 1. Review and be responsible to the Commissioner, for information shown on its subcontractor's Shop and Installation drawings and manufacturers' data, and also for conformity to Contract Documents.
 2. "Ring Up" corrections made on all submissions for approval, so as to be readily seen, and that the symbol "GC", "PL", "HVAC" or "EL" be used to indicate that the correction and/or information added was made by the Contractor and/or its subcontractor(s).
 3. Clearly designate which entity is to perform the work when the term, "work by others" or other similar phrases are indicated on the Contract Drawings before submission to the Design Consultant.
 4. Stamp submissions "Recommended for Acceptance", date and forward to the Design Consultant.
2. The Contractor shall promptly prepare and submit project specific layout detail and Shop Drawings of such parts of the work as are indicated in the Specifications, Schedule F of the Addendum or as required. These Shop Drawings shall be made in accordance with the Contract Drawings, Specifications and Supplementary Drawings, if any. The Shop Drawings shall be accurate and distinct and give all the dimensions required for the fabrication, erection and installation of the work.
3. Size of Drawings: The Shop Drawings, unless otherwise directed, shall be on sheets of the same size as the Contract Drawings, drawn accurately and of sufficient scale to be legible, with a one half (1/2) inch marginal space on each side and a two (2) inch marginal space for binding on the left side.



4. Scope of Drawings: Shop Drawings shall be numbered consecutively and shall accurately and distinctly represent all aspects of the work, including without limitation the following:
 - a. All working and erection dimensions
 - b. Arrangements and sectional views
 - c. Necessary details, including performance characteristics, and complete information for making necessary connections with other work
 - d. Kinds of materials including thickness and finishes
 - e. Identification of products
 - f. Fabrication and installation drawings
 - g. Roughing-in and setting diagrams
 - h. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring
 - i. Shop work manufacturing instructions
 - j. Templates and patterns
 - k. Schedules
 - l. Design calculations
 - m. Compliance with specified standards
 - n. Notation of coordination requirements
 - o. Notation of dimensions established by field measurement
 - p. Relationship to adjoining construction clearly indicated
 - q. Seal and signature of professional engineer if specified
 - r. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
 - s. All other information necessary for the work and/or required by the Commissioner.
5. Titles and Reference: Shop Drawings shall be dated and contain:
 - a. Name of the Project, DDC Project Number and Contract Number
 - b. The descriptive names of equipment, or materials covered by the Contract Drawings and the classified item number or numbers, if any, under which it is, or they are required
 - c. The locations or points and sequence at which materials, or equipment, are to be installed in the work
 - d. Cross references to the section number, detail number and paragraph number of the Contract Specifications
 - e. Cross references to the sheet number, detail number, etc., of the Contract Drawings
6. Field Measurements: In addition to the above requirements, the Shop Drawings shall be signed by the Contractor and, if applicable, the subcontractor responsible for preparation of the Shop Drawings. Each Shop Drawing shall be stamped with the following wording:

FIELD MEASUREMENTS: The Contractor certifies that it has verified and supplemented the Contract Drawings by taking all required field measurements, which said measurements correctly reflect all field conditions and that this Shop Drawing incorporates said measurements.
7. Contractor's Statement with Submittal: Any Submittal by the Contractor for acceptance, including without limitation, all dimensional drawings of equipment, blueprints, catalogues, models, samples and other data relative to the equipment, the materials, the work or any part thereof, must be accompanied by a statement that the Submittal has been examined by the Contractor and that everything shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If there is any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, the Contractor shall, in its statement, list and clearly describe each such discrepancy.

Acceptance will be given based upon the Contractor's representation that what is shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If



the Contractor's statement indicates any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, such change is subject to review and prior written acceptance by the Design Consultant. In addition, such change may require a change order in accordance with Article 25 of the Contract. In the event any such change is approved, any additional expense or increased cost in connection with the change is the sole responsibility of the Contractor.

8. Submission of Shop Drawings:

- a. Initial Submission: The Contractor shall submit seven (7) copies of each Shop Drawing to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Shop Drawings to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory Shop Drawing will be stamped "No Exceptions Taken", be dated and distributed by the Design Consultant as follows:
- 1) Two (2) copies thereof will be returned to the Contractor by letter
 - 2) Three (3) copies of the approved Shop Drawing and copy of the transmittal letter to the Contractor will be forwarded to DDC
 - 3) One copy will be retained by the Design Consultant
 - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriate

Should the Shop Drawing(s) be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return the Shop Drawings to the Contractor with the necessary corrections and changes to be made as indicated thereon.

- b. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each shop drawing to the Design Consultant. The Contractor shall revise and resubmit the Shop Drawing as required by the Design Consultant until the Shop Drawings are stamped "No Exceptions Taken". However, Shop Drawings which have been stamped "Make Corrections Noted" shall be considered an "Acceptable" Shop Drawing and NEED NOT be resubmitted.
- c. Commencement of Work: No work or fabrication called for by the Shop Drawings shall be done until the acceptance of the said drawings by the Design Consultant is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractor's subcontractors which Shop Drawing indicated work related to, adjacent to, impinging upon, or affecting work to be done by other subcontractors shall be transmitted to the subcontractors so affected. [These accepted Shop Drawings shall be distributed to the affected subcontractors when required with a copy of the transmittal to the Resident Engineer.]
- d. Variations: If the Shop Drawings show variations from the Contract requirements because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in its letter of submittal. Acceptance of the Shop Drawings shall constitute acceptance of the subject matter thereof only and not of any structural apparatus shown or indicated.

G. Product Data:

1. General: Except as otherwise prescribed herein, the submission, review and acceptance of Product Data and Catalogue cuts shall conform to the procedures specified in Sub-Section 1.6 F, Shop Drawings.
2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
3. Mark each copy of each submittal to show which products and options are applicable.
4. Include the following information, as applicable:



- a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - l. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
5. Submit Product Data before or concurrent with Samples.
6. Submission of Product Data:
- a. Initial Submission: The Contractor shall submit seven (7) sets of Product Data to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Product Data to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory catalogue cut will be stamped "No Exception Taken", be dated and distributed as follows:
 - 1) Two (2) copies thereof will be returned to the Contractor by letter
 - 2) Three (3) copies of the Product Data and copy of the transmittal letter to the Contractor will be forwarded to DDC
 - 3) One copy will be retained by the Design Consultant
 - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriateShould the Product Data be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return one (1) set of such Product Data to the Contractor with the necessary corrections and changes to be made indicated and one (1) set to DDC.
7. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each Product Data for the review of the Design Consultant. The Contractor shall revise and resubmit the Product Data as required by the Design Consultant until the submission is stamped "No Exceptions Taken" by the Design Consultant. However, Product Data which has been stamped "Make Corrections Noted" shall be considered an "Accepted" Product Data and NEED NOT be resubmitted.
- H. Samples of Materials:
1. For samples of materials involving electrical work of any nature, refer to Section 00 35 06 - General Electrical Requirements.
 2. Samples shall be in triplicate, of sufficient size to show the quality, type, range of color, finish and texture of the material.
 3. Each of the samples shall be labeled as follows:
 - a. Name of the Project, DDC Project Number and Contract Number
 - b. Name and quality of the material
 - c. Date



- d. Name of Contractor, subcontractor, manufacturer and supplier
- e. Related Specification or Contract Drawing reference to the samples submitted
4. A letter of transmittal, in triplicate, from the Contractor requesting acceptance must accompany all such samples.
5. Transportation charges to the Design Consultant's office must be prepaid on all samples forwarded.
6. Samples for testing purposes shall be as required in the Specifications.
7. Samples on Display: When samples are specified to be equal to approved product, they shall be carefully examined by the Contractor and by those whom the Contractor expects to employ for the furnishing of such materials.
8. Timely Submissions Log/Schedule: Samples shall be submitted in accordance with approved Shop Drawing log so as to permit proper consideration without delaying any operation under the project. Materials should not be ordered until acceptance is received, in writing, from the Design Consultant. All materials shall be furnished equal in every respect to the accepted samples.
9. The Acceptance of any samples will be given as promptly as possible, and shall be only for the characteristic color, texture, strength, or other feature of the material named in such approval, and no other. When this approval is issued by the Design Consultant, it is done with the distinct understanding that the materials to be furnished will fully and completely comply with the Specifications, the determination of which may be made at some later date by a laboratory test or by other procedure. Use of materials will be permitted only so long as the quality remains equal to the approved samples and complies in every respect with the Specifications, and the colors and textures of the samples on file in the office of the Design Consultant, for the project.
10. Acceptability of test Data: The Commissioner will be the final judge as to acceptability of laboratory test data and performance in service of materials submitted.
11. Valuable Samples: Valuable samples, such as hardware, plumbing and electrical fixtures, etc., not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the work after all questions of acceptability have been settled, providing suitable permanent records are made as to the location of the samples, their properties, etc.
12. Equivalent Quality: Any material, article and/or equipment which is designated in the Drawings and/or Specifications by a number in the catalogue of any manufacturer or by a manufacturer's grade or trade name is designated for the purpose of describing the material, article and/or equipment and fixing the standard of performance and/or function, as well as the quality and/or finish. Any material, article and/or equipment which is other than what is specified in the Drawings and/or Specifications will only be accepted if the Commissioner makes a written determination that such material, article and/or equipment is equivalent to that which is specified in the Drawings and/or Specifications.
13. The submission of any material, article and/or equipment as the equal of any material, article and/or equipment set forth in the Drawings and/or Specifications as a standard shall be accompanied by any and all information essential for determining whether such proposed material, article and/or equipment is equivalent to that which is specified. Such information shall include, without limitation, illustrations, drawings, descriptions, catalogues, records of tests, samples, as well as information regarding the finish, durability and satisfactory use of such proposed material, article and/or equipment under similar operating conditions.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7

1.7 LEED SUBMITTALS:

- A. Comply with submittal requirements specified in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL; Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS; Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS; Section 01 81 19, INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS and Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.
- B. LEED Building submittal information shall be assembled into one package per each applicable specification section, separate from all other non-LEED submittals. Each submittal package shall have a separate transmittal and identification as described in Sub-Section 1.5 herein.
- C. Number of Copies: Submit FOUR (4) copies of LEED submittals, in accordance with procedure described in Article 1.5 herein, unless otherwise indicated.
- D. Material Safety Data Sheets (MSDSs) for LEED Certification: Submit information necessary to show compliance with LEED certification requirements, which will be the limit of the Design Consultant's review for LEED compliance.
 - 1. Designated LEED submittals that include non-LEED MSDS data will not be reviewed. The entire submittal will be returned for re-submission.
- E. Product Cut Sheets and/or Shop Drawings for LEED Certification: Provide product cut sheets and/or shop drawings with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project. For detailed requirements refer to Sub-Section 1.6 of Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED PROJECTS.
 - 1. Provide the quantity, length, area, volume, weight, and/or cost of each product submitted as required to satisfy LEED documentation requirements. Refer to Sub-Section 1.6 of Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED PROJECTS.

1.8 ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:

- A. In accordance with Section 01 10 00 Summary, Sub-Section 1.5 E, the Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel and Best Available Technology (BAT) in Non road Vehicles. Submission of such reports shall be in accordance with the schedule, format, directions and procedures established by the Commissioner.

1.9 CONSTRUCTION PHOTOGRAPHS AND DVD RECORDINGS:

- A. Submit construction progress photographs and DVD recordings in accordance with requirements of Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION

1.10 AS-BUILT DOCUMENTS:

- A. Submit all as-built documents in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS

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PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 33 00

SUBMITTAL PROCEDURES

01 33 00 - 10



SECTION 01 35 03

GENERAL MECHANICAL REQUIREMENTS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 03

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. The General Mechanical Requirements contained herein shall be followed by the Contractor, as well as its subcontractor for HVAC work. This Section sets forth the General Requirements applicable to mechanical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Specifications and/or the Contract Drawings, whichever requirement is the most stringent, as determined by the Commissioner, shall take precedence.

1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS
- D. Section 01 42 00 REFERENCES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. CONCEALED PIPING AND DUCTS -: shall mean piping and ducts hidden from sight in masonry or other construction, in floor fill, trenches, partitions, hung ceilings, furred spaces, pipe shafts and in service tunnels not used for passage. Where piping and ducts run in areas that have hung ceilings, such piping and ducts shall be installed in the hung ceilings. For work on existing piping any insulation on such existing piping is to be tested for asbestos and abated, if found to be positive by a certified asbestos contractor. Such testing and abatement shall occur prior to the performance of any work on these pipes.

1.5 SUBMITTALS:

- A. INTENT OF MECHANICAL CONTRACT DRAWINGS – Mechanical Contract Drawings are in part diagrammatic and show the general arrangement of the equipment, ducts and piping included in the Contract and the approximate size and location of the equipment.
- B. The Contractor shall follow these Contract Drawings in laying out the work and verify the spaces in which it will be installed. The Contractor shall submit, as directed, Mechanical Shop Drawings, roughing drawings, manufacturer's Shop Drawings, field drawings, cuts, bulletins, etc., of all materials, equipment and methods of installation shown or specified in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.



1. Submit sheet metal shop standards. Submit manufacturer's product data including gauges, materials, types of joints, scaling materials and installations for metal ductwork materials and products.
2. Submit scaled layout drawing (3/8"=1') of metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, slopes of horizontal runs, wall and floor penetrations and connections. Show modifications of indicated requirements made to conform to local shop practice and how those modifications ensure that free area, materials and rigidity are not reduced. Layouts should include all the room plans, mechanical equipment rooms and penthouses. Method of attachment of duct hangers to building construction all with the support details. Coordinate shop drawings with related trades prior to submission.
3. Indicate duct fittings, particulars such as gauges, sizes, welds and configuration prior to start of work for low-pressure systems.
4. Submit maintenance data and parts lists for metal ductwork materials and products. Include this data, product data and shop drawings in maintenance manual.

1.6 ACCESSIBILITY:

All work shall be installed by the Contractor so as to be readily accessible for inspection, operation, maintenance and repair. Minor deviations from the arrangement indicated on the Contract Drawings may be made to accomplish this, but they shall not be made without approval by the Commissioner.

1.7 CHANGES IN PIPING, DUCTS, AND EQUIPMENT:

Wherever field conditions are such that for proper execution of the work, reasonable changes in location of piping, ducts and equipment are necessary and required, the Contractor shall make such changes as directed and approved, without extra cost to the City.

1.8 CLEANING OF PIPING, DUCTS, AND EQUIPMENT:

Piping, ducts and equipment shall be thoroughly cleaned by the Contractor of all dirt, cuttings and other foreign substances. Should any pipe, duct or other part of the several systems be obstructed by any foreign matter, the Contractor will be required to pay for disconnecting, cleaning and reconnecting wherever necessary for the purpose of locating and removing obstructions. The Contractor shall pay for repairs to other work damaged in the course of removing obstructions. For work on existing piping, ducts and equipment the Contractor shall pay special attention during this task so as not to disturb the insulation on such piping, ducts or equipment.

1.9 STANDARDIZATION OF SIMILAR EQUIPMENT:

Unless otherwise particularly specified, all equipment of the same kind, type or classification, and used for identical purposes, shall be the product of one (1) manufacturer.

1.10 SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR:

Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor shall be designed by an Engineer licensed in New York State retained by the Contractor. Supporting structures shall be built by the Contractor of sufficient strength to safely withstand all stresses to which they may be subjected, within permissible deflections, and shall meet the following standards:

- A. Structural Steel - ASTM Standard Specifications, AISC and New York City Construction Codes.



- B. Concrete for supports for equipment shall conform to the Specifications for concrete herein, but in no case shall be less than the requirements of the New York City Construction Codes for average concrete.
- C. Steel reinforcement for concrete shall be of intermediate grade and shall meet the requirements of the Standard Specifications for Billet Steel-Concrete Reinforcement Bars, ASTM.
- D. Drawings and calculations shall be submitted for review and acceptance in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

1.11 ELIMINATION OF NOISE:

- A. All systems and/or equipment provided under the Contract shall operate without objectionable noise or vibration.
- B. Should operation of any one or more of the several systems produce noise or vibration which is, in the opinion of the Commissioner, objectionable, the Contractor shall at its own expense make changes in piping, equipment, etc. and do all work necessary to eliminate objectionable noise or vibration.
- C. Should noise or vibration found objectionable by the Commissioner be transmitted by any pipe or portions of the structure from systems and/or equipment installed under the Contract, the Contractor shall at its own expense install such insulators and make such changes in or additions to the installations as may be necessary to prevent transmission of this noise or vibration.

1.12 PRELIMINARY FIELD TEST:

As soon as conditions permit, the Contractor shall furnish all necessary labor and materials for, and shall make, preliminary field tests of the equipment to ascertain compliance with the requirements of the Contract. If the preliminary field tests disclose equipment that does not comply with the Contract, the Contractor shall, prior to the acceptance test, make all changes, adjustments and replacements required.

1.13 INSTRUCTIONS ON OPERATION:

At the time the equipment is placed in permanent operation by the City, the Contractor shall make all adjustments and tests required by the Commissioner to prove that such equipment is in proper and satisfactory operating condition. The Contractor shall instruct the City's operating personnel on the proper maintenance and operation of the equipment for the period of time called for in the Specifications.

1.14 CERTIFICATES:

On completion of the work, the Contractor shall obtain certificates of inspection, approval, acceptance and of compliance with all laws from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES. The work shall not be deemed substantially complete until the certificates have been delivered. See General Comments regarding problems with specifying items required for substantial completion.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 35 03



NEW YORK CITY DEPARTMENT OF
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Division 01 – DDC STANDARD GENERAL CONDITIONS
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SECTION 01 35 06
GENERAL ELECTRICAL REQUIREMENTS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section sets forth the General Requirements applicable to electrical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Project Specifications and/or the Contract Drawings, whichever requirement is the most stringent, as determined by the Commissioner, shall take precedence.
- B. This Section includes the following:
1. Procedure for Electrical Approval
 2. Submittals
 3. Electrical Installation Procedures
 4. Electrical Conduit System Including Boxes (Pull, Junction and Outlet)
 5. Electrical Wiring Devices
 6. Electrical Conductors and Terminations
 7. Circuit Protective Devices
 8. Distribution Centers
 9. Motors
 10. Motor Control Equipment
 11. Schedule of Electrical Equipment

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|---------------------------------|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| C. | Section 01 35 03 | GENERAL MECHANICAL REQUIREMENTS |
| D. | Section 01 42 00 | REFERENCES |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |

1.4 DEFINITIONS:

- A. **WIRING:** means both wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).
- B. **POWER WIRING:** means wiring from a panel board or other specified source to a starter (if required) then to a disconnect (if required), then to the final point of usage such as a motor, unit or device.
- C. **CONTROL and/or INTERLOCK WIRING:** means that wiring that signals the device to operate or shut down in response to a signal from a remote control device such as a temperature, smoke, pressure, float,



etc. device (starters and disconnect switches are not included in this definition) regardless of the voltage required for the controlling device.

- D. **RIGID STEEL CONDUIT:** shall mean rigid steel, heavy wall conduit that is hot dipped galvanized inside and outside. The conduit shall meet the requirements of the latest edition, as amended, of the "Standard for Rigid Steel Conduit" of the Underwriters' Laboratories, Inc. Unless otherwise specified in the Specifications or indicated on the Contract Drawings, rigid steel conduit shall be used for all exposed work, for all underground conduits in contact with earth and for fire alarms systems, as required by the New York City Construction Codes.
- E. **ELECTRICAL METALLIC TUBING (EMT):** shall mean industry standard thin wall conduit of galvanized steel only. All elbows, bends, couplings and similar fittings which are installed as a part of the conduit system shall be compatible for use with electric metallic tubing. Couplings and terminating fittings shall be of the pressure type as approved by the Commissioner. Set screw fittings will not be acceptable. EMT shall meet the requirements of the latest edition, as amended, of the "Standard for Electrical Metallic Tubing of the Underwriters Laboratories Inc." EMT may only be used where specifically indicated. In no case will EMT be permitted in spaces other than hung ceilings and dry wall partitions.
- F. **FLEXIBLE METALLIC CONDUIT (FMC):** Shall mean a conduit made through the coiling of a self-interlocking ribbed strip of aluminum or steel, forming a hollow tube through which wires can be pulled. For final connections to motors and motorized equipment, not more than a 4' - 0" length of flexible conduit may be used. For watertight installations, this conduit shall be of a watertight type, attached with watertight glands or fittings for final connections from outlet box to recessed lighting fixtures and in locations only where specifically permitted by the Specifications or Contract Drawings.

1.5 PROCEDURE FOR ELECTRICAL APPROVAL:

This Sub-Section sets forth General Electrical information, as well as required approvals for all electrical work required for the Project, including ancillary electrical work which may be included in the work of other trade subcontractors.

- A. **ELECTRIC SERVICE:** The electric service supply is subject to commercial and operating variation of the utility company. Proper provision shall be made to have all apparatus operate normally under these conditions.
- B. **ACCEPTANCE:** Acceptance and approval of the work will be contingent upon the inspection and test of the installation by the City regulatory agency.
- C. **TESTS:** The Contractor shall notify the Commissioner when the Contractor has completed the work and is ready to have it inspected and tested. Upon completion of the work tests shall be made as required by the Commissioner of all electrical materials, electrical and associated mechanical equipment, and of appliances installed hereunder. The Contractor shall furnish all labor and material for such tests. Should the tests show that any of the material, appliances or workmanship is not first class or not in compliance with the Contract, the Contractor on written notice shall remove and promptly replace them with other materials in conformity with the Contract.
- D. **CERTIFICATE OF THE BUREAU OF ELECTRICAL CONTROL, OF THE DEPARTMENT OF BUILDINGS (B.E.C.):** The Contractor must file prior to requesting a substantial completion inspection a Certificate of Inspection issued by B.E.C. On completion of the work the Contractor shall obtain certificates of inspection, approval, acceptance and compliance from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES.
- E. **RESPONSIBILITY FOR CARE AND PROTECTION OF EQUIPMENT:**
 - 1. The Contractor furnishing any equipment shall be responsible for the equipment until it has been finally inspected, tested and accepted, in accordance with the requirements of the Contract.



2. After delivery and before and after installation, the Contractor shall protect all equipment against theft, injury or damage from all causes. The Contractor shall carefully store all equipment received for work, which is not immediately installed. If any equipment has been subject to possible injury by water, it shall be thoroughly dried out and put through a special dielectric test as directed by the Commissioner, at the expense of the Contractor or replaced by the Contractor without additional cost to the City.
- F. **UNIFORMITY OF EQUIPMENT:** Any two (2) or more pieces of equipment, apparatus or materials of the same kind, type or classification which are intended to be used for identical types of service, shall be made by the same manufacturer.

1.6 SUBMITTALS:

A. CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL:

1. The Contractor shall submit to the Commissioner for approval, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, complete dimensional drawings of all equipment, wiring diagrams, motor test data, details of control, installation layouts showing all details and locations and including all schedules, and descriptions and supplementary data to comprise complete working drawings and instructions for the performance of the work. A description of the operation of the equipment and controls shall be included. A letter, in triplicate, shall accompany each submittal.
2. The Contractor shall submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, duplicate samples of such materials and appliances as may be requested by the Commissioner for approval. These samples shall be properly tagged for identification and submitted for examination and test. After the samples are approved, one (1) sample will be returned to the Contractor and the other sample will be filed in the office of the Commissioner's representative for inspection use. After the Contract is completed, the second set of samples will be returned to the Contractor.

- B. **TIMELINESS:** All material shall be submitted in accordance with the submittal schedule in sufficient time for the progress of construction. Failure to promptly submit acceptable samples and dimensional drawings of equipment will not be accepted as grounds for an extension of time. The Commissioner may decline to consider submittals unless all related items are submitted at the same time.
- C. **CONTRACTOR'S STATEMENT WITH SUBMITTALS:** Contractor shall submit statement in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- D. **BULLETINS AND INSTRUCTIONS:** The Contractor shall furnish and deliver to the Commissioner in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS and Section 01 77 00, CLOSEOUT PROCEDURES, after acceptance of the work, four (4) complete sets of instructions, technical bulletins and any other printed matter (diagrams, prints, or drawings) required to provide complete information for the proper operation, maintenance and repair of the equipment and the ordering of spare parts.

PART II – PRODUCTS (Not Used)



PART III – EXECUTION

3.1 ELECTRICAL INSTALLATION PROCEDURES:

This Sub-Section sets forth the General Installation Procedure that shall apply to all electrical work and electrical equipment appearing in the Contract.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

- A. **INTENT OF CONTRACT DOCUMENTS:** The Drawings and Specifications are to be interpreted as a means of conveying the scope and intent of the work without giving every minor electrical detail. It is intended, nevertheless, that the Contractor shall provide whatever labor and materials are found necessary, within the scope of the Contract, for the successful operation of the installation. Specific details of individual installations are to be finally decided upon when the Contractor submits Working or Shop Drawings for approval to DDC. Whenever there are two (2) or more methods to complete project work within the Contract scope, the Commissioner reserves the right to choose that method which, in the Commissioner's opinion, will afford the most satisfactory performance, lasting qualities, and accessibility for repairs, even though this selection is the most costly.
- B. **SCHEMATIC PLANS – APPROXIMATE LOCATIONS:** Conduits and wiring are shown on the plans for diagrammatic purposes only. Therefore, conduit layouts may not necessarily give the actual physical route of the conduits. The Contractor who installs a conduit system will also be required, as part of the work, to furnish and install all hangers and pull-boxes, including any special pull-boxes found necessary to overcome interferences, and to facilitate the pulling of electrical cables. Similarly, the locations of equipment, appliances, outlets and other items shown on Contract Drawings are only approximate and are to be definitively established when equipment Shop Drawings are submitted and approved by DDC during construction.
- C. **SLEEVES:** required for conduits passing through walls or floors, shall be furnished and set by the Contractor installing the conduits. Sleeves in waterproofed floors shall be provided with flashing extending 12 inches in all directions from sleeve and secured to waterproofing. Flashing shall be turned down into space between pipe and sleeve and caulked watertight. Flashing shall be 20 oz. cold rolled copper. Sleeves shall be supplied with welded flanges similar to those supplied by the subcontractor for Plumbing Work and shall extend one (1) inch above finished floor.
- D. **COORDINATION:** The Contractor shall keep in close touch with the construction progress and obtain the necessary information for the accurate placement of its work in ample time before project construction operations obstruct its work. The Contractor is to consult all other Contract Drawings, as well as approved equipment Shop Drawings on file in the Resident Engineer's Field Office. This will aid in avoiding interferences, omissions and errors in the electrical installation.
- E. **RESTORATION:** If drilling or cutting is done on finished surfaces of equipment or the structure, any marring of the surface shall be repaired or replaced by the Contractor. The Contractor shall be held responsible for corrective restoration due to its cutting or drilling, and for any damage to the project or its contents caused by the Contractor or the Contractor's workers. If any piercing of waterproofing occurs because of the installation of the work, the Contractor shall restore the waterproofing, at its own expense, to the satisfaction of the Commissioner.
- F. **ELECTRICAL WORK AT SITE:** The Contractor furnishing equipment consisting of a number of related electrical devices or appliances, mounted in a single enclosure, or on a common base, shall furnish this unit complete with internal wiring, connections, terminal boxes with copper connectors and/or lugs and ample electrical leads, ready for connection and operation. The cost of any wiring, re-wiring or other work required to be done on this unit in the field, shall be borne by the Contractor, without additional cost to the City.
- G. **COOPERATION AMONG SUBCONTRACTORS:** Whenever an electrically operated unit or system involves the combined work of several subcontractors for its installation and successful operation, the



Contractor shall require each subcontractor to exercise the utmost diligence in cooperating with others to produce a complete, harmonious installation.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2

3.2 ELECTRICAL CONDUIT SYSTEM INCLUDING BOXES (PULL, JUNCTION AND OUTLET):

This Sub-Section sets forth the requirements applying to the installation of electrical conduits, boxes or fittings. Rigid steel conduit shall be used throughout, unless otherwise directed by the Commissioner. Where the word 'conduit', without a modifier such as, rigid steel, EMT, etc., is specified to be used, it shall be interpreted to mean, rigid steel, heavy wall, threaded conduit.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

A. INSTALLATIONS AND APPLICATIONS:

1. Unless otherwise specified or indicated on the Contract Drawings, conduit runs shall be installed concealed in finished spaces.
2. **CONDUIT SIZES:** The sizes of conduit shall be as indicated on the Contract Drawings. Wherever conduit sizes are not indicated, the conduit shall meet the requirements of the New York City Electrical Code to accommodate the conductors to be installed therein.
3. Conduits shall be reamed smooth after cutting. No running threads will be permitted. Universal type couplings shall be used where required. Conduit joints shall be screwed up to butt. Empty conduits after installation shall have all open ends temporarily plugged to prevent the entrance of water or other foreign matter.
4. Conduits being installed in concrete or masonry shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.
5. **UNDERGROUND STEEL CONDUITS:** Unless otherwise specified, all underground steel conduits in contact with earth shall be encased by the Contractor who installs them, in a covering of not less than two (2) inches of an approved concrete mixture. Concrete mix shall be one (1) part cement to four and one-half (4 ½) parts of fine and coarse aggregate.
6. **EXCAVATION RESTORATION PERMITS:** When installing underground conduits, duct banks or manholes the Contractor shall perform the work of cutting pavement, excavation shoring, keeping trenches or holes pumped dry, backfilling, restoration of surfaces to original condition and removal of excess earth and rubbish from premises. During the work, the Contractor shall provide adequate crossovers, protective barriers, lamps, flags, etc., to safeguard traffic and the public. When the work is in a public highway or street, the Contractor shall secure and pay for all necessary permits and inspection fees and pay the cost of repaving.
7. **EXPOSED CONDUIT SUPPORTS:** Exposed conduit shall be supported by Galvanized hangers with necessary inserts, beam clamps of approved design or attached to walls or ceilings by expansion bolts. Exposed conduits shall be supported or fastened at intervals not more than five (5) feet.
8. Exposed conduit shall be installed parallel or at right angles to ceiling, walls and partitions. Where direction changes of exposed conduit cannot be made with neat bends, such as required around beams or columns, conduit type fitting shall be used.



9. The conduit shall be installed with an approved expansion joint:
 - a. Wherever the conduit crosses a building expansion joint the Contractor will be held responsible for determining where the building expansion joints are located.
 - b. Every 200 feet, when in straight runs of 200 feet or longer.
 10. Conduit may only enter and leave a floating slab in the vertical direction, and then only in an approved manner. Horizontal entries into floating slabs are not permitted.
 11. Conduit installed in pipe shafts shall be properly supported to carry the total weight of the raceway system complete with cable. In addition at least one (1) horizontal brace per 10 ft. section shall be provided to assure stability of the raceway system.
 12. **BUSHINGS AND LOCKNUTS:** Approved bushings and locknuts shall be used wherever conduits enter outlet boxes, switch boxes, pull boxes, panel board cabinets, etc.
 13. **CONDUIT BENDS:** shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of two (2) inch in diameter or larger shall be made with an hydraulic or power pipe bender. The radius of the inner edge of any bend shall not be less than six (6) times the internal diameter of the conduit where rubber covered conductors are to be installed, and not less than 10 times the internal diameter of the conduit where lead covered conductors are to be used. Long gradual sweeps will be required, rather than sharp bends, when changes of direction are necessary.
 14. **EMPTY CONDUITS**
 - a. **TESTS:** All conduits and ducts required to be installed and left empty shall be tested for clear bore and correct installation by the Contractor using a ball mandrel and a brush and snake before the installation will be accepted. The ball shall be turned to approximately 85% of the internal diameter of the raceway to be tested. Two (2) short wire brushes shall be included in the mandrel assembly. Snaking of conduits, ducts, etc., shall be performed by the Contractor in the presence of the Resident Engineer. Any conduits or ducts which reject the mandrel shall be cleared at once with the Contractor bearing all costs, such as chopping concrete, to replace the defective conduit and restore the surface to its original condition.
 - b. **TAGS:** Numbers or letters shall be assigned to the various conduit runs, and as they test clear they shall be identified by a fiber tag not less than 1-¼ inch width, attached by means of a nylon cord. All conduit terminations in panel, splice or pull boxes as well as those out of the floor or ceiling shall be tagged.
 - c. **TEST RECORDS:** As the conduit runs clear, a record shall be kept under the heading of "Empty Conduit Tested, Left Clear, Tagged and Capped" showing conduit designation, diameter, location, date tested and by whom. When complete, this record shall be signed by the Resident Engineer and submitted in triplicate for approval. This record shall be entered on the Contract Record Drawings under Section 01 78 39, CONTRACT RECORD DOCUMENTS.
 - d. **CAPPING:** All empty conduit and duct openings, after test, shall be capped or plugged by the Contractor as directed.
 - e. **DRAG LINES:** A drag line shall be left in all empty conduit.
- B. BOXES:**
1. The Contractor shall furnish and erect all pull boxes indicated on the plans or where required. Sides, top and bottom of pull boxes shall be Galvanized coated and shall be built of No. 12 USSG steel reinforced at corners by substantial angle irons and riveted or welded to plates. Bottom or side



- of pull boxes shall be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations shall have threaded hubs and gaskets and be NEMA 4X. All pull boxes shall be suspended from ceiling or walls in the most substantial manner.
2. In centering outlets, the Contractor is cautioned to allow for overhead pipes, ducts and other obstructions, and for variations in arrangement and thickness of fireproofing, soundproofing and plastering. Precaution should be exercised regarding the location of window and door trims, paneling, etc. Mistakes resulting from failure to exercise precaution must be corrected by the Contractor at no additional cost to the City. Outlets in hung ceilings shall be supported from the black iron or structure.
 3. The exact location of all outlets in finished rooms shall be as directed. When the interior finish has been applied, the Contractor shall make any necessary adjustment of its work to properly center the outlets. All outlet boxes for local switches near doors shall be located at the strike side of doors as finally hung, whether so indicated on the drawings or not.
 4. Exposed wall outlet boxes shall be erected neatly and tight against the walls and securely anchored to same.
 5. All wall outlets of each type shall be set accurately at the same level on each floor, except where otherwise specified or directed. Where special conditions occur, outlets shall be located as directed.
 6. MOUNTING HEIGHTS: The following heights are standard heights and are subject to correction due to coordination with Contract Drawings. All such changes must be approved by the Resident Engineer. Heights given are from finished floor to center line of outlet or device on wall or partition, unless otherwise indicated.
 - a. General Convenience Outlets
(mount vertical) 1'-6"
 - b. Clock Outlets 8'-6" or 1'-6" below ceiling
 - c. Wall Lighting Switches 4'-0"
 - d. Motor Controllers 5'-0"
 - e. Motor Push-button 4'-2"
 - f. Telephone Outlets As Directed
 - g. Fire Alarm Bells 8'-6" or 1'-6" below ceiling
 - h. Fire Alarm Stations 4'-0"
 - i. Intercom Outlet 1'-6"
 - j. Cooking and Refrigerator Unit As Directed
 7. Outlet boxes shall be of approved design and construction; of form and dimensions suited and adapted to its specific location; the kind of fixture to be used and the number and arrangements of conduits, etc., connecting therewith. All ferrous outlet boxes shall meet the requirements for zinc coating as specified under Electrical Conduit Systems.
 8. There shall be knockouts opened only for the insertion of conduit. Any outlet boxes with more openings than are necessary for conduit insertion shall be sealed by the Contractor without additional charge.
 9. All outlet boxes and junction boxes for exposed work shall be galvanized cast iron or cast aluminum with threaded openings. Outlet boxes for exposed inside work in damp locations shall be galvanized cast iron or cast aluminum with threaded hubs and neoprene gaskets.
 10. Junction boxes shall not be less than 4 11/16" square and shall be equipped with zinc coated plates. Where plates are exposed they shall be finished to match the room decor.



11. **FIXTURE SUPPORTS:** Outlet boxes supporting lighting fixtures shall be equipped with fixture studs held by approved galvanized stove bolts or integral with the box. Cast iron or malleable boxes shall have four (4) tapped holes for mounting required cover or fixtures.
12. Outlet boxes exposed to the weather or indicated W.P. shall be cast iron or cast aluminum and the covers made watertight with neoprene gaskets. The boxes shall have external lugs for mounting. Drilling of the body of the fitting for mounting will not be permitted. The cover screws shall be appropriate in size, non-corrodible and not less than four (4) in number for each box opening.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 ELECTRICAL WIRING DEVICES:

- A. **WALL SWITCHES** shall be of the best specification grade, quiet type, and shall have a rating of 20 Amperes at 277 volts, as manufactured by Bryant, Hubbell or approved equal. The mechanism shall be equipped with arc snuffers. They shall be of the tumbler type, single pole. Switches of the 3-way type shall have a similar rating.
- B. **RECEPTACLES:**
 1. **CONVENIENCE OUTLETS:** shall be of the best specification grade, duplex, two-pole, 3-wire, 20 Amperes at 125 volts. It shall have a grounding pole that shall be grounded to the conduit system. Receptacles shall be capable of both back and side wiring and shall have only one (1) grounding screw. Receptacles shall be Hubbell Cat. #5262 or approved equal.
 2. **HEAVY DUTY RECEPTACLE OUTLETS:** shall have the Ampere rating and the number of poles specified on the Contract Drawings and shall be Hubbell, Russell-Stoll, Bryant, AH & H or approved equal. Each outlet shall have a grounding pole, which shall be grounded to the conduit system.
 3. **FLOOR RECEPTACLES:** shall be Russell & Stoll #3040 or approved equal, to fit into floor box previously specified.
 4. **NAMEPLATES:** are required for all receptacles other than 120V.
- C. **CLOCK HANGERS:** Clock outlets for surface type clocks shall be equipped with a supporting hook and recessed faceplate to conceal the electrical cord.
- D. **WATERTIGHT DEVICES:** For installations exposed to weather or in damp locations, the devices shall be in a gasketed, cast iron enclosure.
- E. **PLATES:**
 1. Every convenience outlet and switch outlet shall be covered by means of a stainless steel No. 302 - 0.4" antimagnetic plate with an approved finish, unless provided otherwise in the detailed Specifications.
 2. Where two (2) or three (3) switches are grouped together, a single faceplate shall be used. Where more than three (3) switches are located at one (1) point, the faceplates may be made up in multiple units.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4

3.4 ELECTRICAL CONDUCTORS AND TERMINATIONS:

- A. **CONDUCTORS FOR LIGHT AND POWER** - All wire and cable shall be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation shall be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees C. for



- both wet and dry locations. Wires No. 8 or larger shall be stranded. Wires and cables shall also be subject to the requirements of the NYCEC. Cables for incoming service or wire in conduits contiguous with the earth or in concrete or other damp or wet locations shall be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and shall be equal to UL Type USE and rated for 600 volts at 75 degrees C. for both wet and dry locations.
- B. **FIXTURE WIRE:** Lighting fixtures shall be wired with No. 14 gauge wire designated as AWM and rated at 105 degrees C.
- C. **OTHER TYPES:** Cables and wires for interior communication systems are described in applicable detailed Specifications.
- D. **MINIMUM SIZE:** Conductors smaller than No. 12 AWG shall not be used for light or power.
- E. **COLOR CODE:** Wires shall have a phase color code, and multiple conductor cables shall be color coded.
- F. **CABLE DATA:** The Contractor shall submit for approval the following information for each size and type of cable to be furnished.
1. Manufacture of Cable - Location of Plant.
 2. Minimum insulation resistance at standard test temperature.
 3. Days required for delivery to site of work after order to proceed with manufacture.
- G. **ORIGINAL REELS:** Cable and wire shall be delivered to the site of the work on original sealed factory reels.
- H. **WIRE INSTALLATION:**
1. **INSTALL WIRES AFTER PLASTERING** - Feeder and branch circuits wiring shall not be installed in conduit before the rough plastering work is completed. No conductors shall be pulled into floor conduits before floor is poured.
 2. **CONDUIT SECURED IN PLACE** - No conductor shall be pulled into any conduit run before all joints are made up tightly and the entire run rigidly secured in place.
 3. **WIRE ENDS** - All wires shall be left with sufficiently long ends for proper connection and stowing.
 4. **PULLING COMPOUNDS** - When required to ease the pulling-in of wires into conduit, only approved compounds as recommended by cable manufacturers shall be used.
 5. **PRESSURE CONNECTORS** - for wires shall be of the cast copper or forged copper pressure plate type. Connectors shall be O.Z., Burndy, National Electric Products or approved equal.
 6. Splices and feeder taps in the gutters of panel boxes shall be made by means of pressure plate type connectors encased in composition covers as manufactured by O.Z., Burndy, National Electric Products or approved equal.
 7. Splices in branch wiring for sound systems and fire systems, shall be first made mechanically secure, then soldered and taped.
 8. In lieu of soldered splices (except for sound and Fire Systems, which must have soldered splices) the following alternates are acceptable for operating temperatures up to 105 degrees C., for fluorescent fixtures and for the splicing of branch circuit wiring up to No. 8 AWG wire:
 - a. Mechanical splices made with mechanical connectors as manufactured by the Minnesota Manufacturing Company "Scotchlock" or approved equal. Mechanical connectors requiring a special tool (pressure connectors, insulators and locking rings) by Buchanan or approved equal. The tool used for connector application shall be as approved by the connector manufacturer.



- b. For wire and cable No. 6 AWG and larger for branch circuit wiring the seamless tubular connector will only be accepted. Application of this connector shall be with a tool recommended by the connector manufacturer.
9. TAGS: All feeders and risers shall be tagged at both ends, and in all pull and junction boxes and gutter spaces through which they pass. Such tags shall be of fiber and have the feeder designation and size stamped thereon.
10. BRANCH CIRCUIT WIRING:
 - a. The Contractor installing branch circuit wiring shall test the work for correct connections and leave all loop splices in the fixture outlet boxes properly spliced and taped. The Contractor shall provide wire ends long enough for convenient connection to device.
 - b. NEUTRALS: No common neutrals shall be used except for lighting branch circuits. Each neutral wire shall be terminated separately on a neutral busbar in the panelboard. No common neutrals will be permitted for convenience receptacle branch circuits.

I. TERMINATIONS

1. LUGS: All lugs for all devices and all cable terminations shall be copper. AL/CU rated lugs will not be permitted. The only exception to this requirement is when the particular device is not manufactured with copper lugs by any manufacturer. Lugs for No. 6 AWG cable and larger shall be cast copper or forged copper pressure plate type. Lugs for 1/0 and larger shall be fastened with two (2) bolts.
2. All lugs shall be of the proper size to accept the cable connected to them. Any subcontractor furnishing a device containing lugs is to coordinate with the Contractor to insure that the device terminations are adequate for the wire or cable (whose size may be larger than expected due to voltage drop considerations) connected to the device.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5

3.5 CIRCUIT PROTECTIVE DEVICES:

This Section sets forth the circuit protective devices such as circuit breakers and safety switches, used in connection with Motor Control Equipment, Distribution Centers, Panel boards and Service Entrance.

A. CIRCUIT BREAKERS:

1. CIRCUIT BREAKERS: shall be operable in any position and shall be of the quick-make, quick-break type on manual operation. The handle shall be trip free, preventing contacts from being held in closed position against abnormal overloads or short circuits. Positive visual indication of automatic tripped position of breaker shall be provided, in addition to the "On" and "Off" indication. All circuit breakers shall be of the bolted type.
2. TRIP RATING: Circuit breakers shall be provided with the required number of trip elements, calibrated at 40 degrees C., ambient temperature, in accordance with wire sizes or motor currents as shown on Contract Drawings or indicated in the Specifications.
3. POLE BARRIER: Multipole pole breakers shall be designed to break all poles simultaneously. They shall be provided with barriers between poles and arc suppressing devices.
4. ELEMENTS: Multipole circuit breakers shall have frames of not less than a 100 Ampere rating. Multipole circuit breakers for 480 volts AC operation shall have an NEMA interrupting rating of 18,000 Amperes, unless a higher rating is specified in the Specific Requirements or indicated on the Contract Drawings.



5. For circuit breakers with frame size up to and including 225 Amperes, the breakers may be provided with non-interchangeable trip elements. For frame ratings above 225 Amperes, the breakers shall be provided with interchangeable trip elements, which can be replaced readily.
6. Single pole circuit breakers for branch circuits shall have a frame size of no less than 100 Amperes, and shall be rated at 125 volt A.C. with a NEMA interrupting rating of 10,000 Amperes, unless a higher rating is specified in the Specifications or indicated on the Contract Drawings.
7. INVERSE TIME ACTION: The circuit breakers shall be dual element type, one (1) element with time limit characteristics, so that tripping will be prevented on momentary overloads, but will occur before dangerous values are reached and the other with instantaneous trip action. Inverse time delay action shall be effective between a minimum tripping point of 125% of rating of breaker and an instantaneous tripping point between 600% and 700% of rated current.
8. CONSTANCY OF CALIBRATION: The tripping elements shall insure constant calibration and be capable of withstanding excessive short circuit conditions without injury.
9. CONTACTS: shall be non-welding under operating conditions and of the silver to silver type.
10. TEMPERATURE RISE: Current carrying parts, except thermal elements, shall not rise in temperature in excess of 30 degrees C. while carrying rated current at rated frequency.
11. NUMBERING: Each circuit breaker shall be distinctly numbered when installed in a group with other breakers. The calibration of trip element shall be indicated on each breaker.

B. SAFETY SWITCHES:

NEMA TYPE HD: When safety switches are permitted to be used for service entrance, motor disconnecting means or to control other types of electrical equipment, they shall be of the type HD of a rating not less than 30 Amperes. Enclosures shall be provided with means for locking. For ratings above 60 Amperes terminals shall have double studs.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.6

3.6 DISTRIBUTION CENTERS:

This Section sets forth the construction and installation procedure for Switchboards, Panel boards and Cabinets.

- A. PANELBOARDS-GENERAL TYPE: The panel boards shall be of the automatic circuit breaker type with individual breakers for each circuit, removable without disturbing the other units. Circuit breakers shall be in accordance with the requirements outlined under "Circuit Protective Devices."
- B. NUMBER AND RATING OF CIRCUIT BREAKERS: The Contract Drawings show a layout of each panel, giving the number, frame, size and trip setting of circuit breakers and number of branch circuits and spare breakers. Each branch circuit shall be distinctly numbered.
- C. BUS-BAR CONSTRUCTION AND SUPPORT: Panel Boards shall be of the dead front type and shall have bus bars and branch circuits designed to suit the system and voltage. Current carrying parts, exclusive of circuit breakers shall be copper and based on a maximum density of 1,000 Amperes per square inch. Bus bars for the main switchboard shall be designed for the frame rating of the Service Breaker. Bus bars shall run up the center of the panel, unless otherwise indicated, and shall have connected thereto the various branch circuits. Unless otherwise specified, bus bars for each panel board shall be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers shall be used. A neutral bus of at least the same capacity as a live bus bar shall be provided for the connection of all neutral conductors. Each terminal shall be identified. All current carrying parts, exclusive of circuit breakers, shall be of copper with a minimum number of joints. The bus bar structure shall be a self-supporting unit, firmly fastened to a 1/2



- inch plastic board, extending the full length and width of assembly which shall serve to insulate the bus structure from the back of panel box. Other methods affording equally effective bus structure support and insulation will be given consideration. An insulating barrier shall separate neutral bus from other parts of panel.
- D. **CIRCUIT BREAKER ASSEMBLY:** The entire circuit breaker and bus bar assembly shall be mounted on an adjustable metal base or pan and secured to the back of panel box. The panel shall have edges flanged for rigidity.
- E. **PANEL MOUNTING:** The panel shall be centered in the panel box to line up with door openings and set level and plumb so that no live parts are exposed with the door open.
- F. **PANEL CABINET:**
1. **PANEL CABINET INSTALLATION:** When installed surface mounted in panel closets they shall be mounted on Kindorf channel.
 2. Where cabinets cannot be set entirely flush due to shallow walls or partitions or where cabinet is extra deep, the protruding sides of cabinet shall be trimmed with a metal or hardwood return molding of approved design and fastened to cabinet so as to conceal the intersection between the wall and cabinet.
- G. **NAMEPLATES:** Nameplates where required, shall be made of engraved Lamicoid sheet, or approved equal. Letters and numbers shall be engraved white on a black background (except for Firehouse projects which shall have white letters on a red background). The Contractor shall submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates shall be of suitable size and shall also be provided at the top of the switchboard or section thereof and on the trim at the top of all lighting and power panels. Similar nameplates shall also be provided for each distribution circuit breaker giving the breaker number, the number of the feeder, and the name of the equipment fed.
- H. **SHOP DRAWINGS:** showing all details of boxes, panels, etc., shall be submitted for approval.
- I. **DIRECTORIES:** A directory shall be fastened with brass screws and consist of a noncorrosive metal frame with dimensions not less than five (5) inches x eight (8) inches and a transparent window of Plasticile, Plexiglass, Lucite, Polycarbonate or approved equal that is not less than 1/16 inch thick over cardboard or heavy paper. The directory shall be typewritten and show the number of each circuit, the name of circuit and lighting or equipment supplied. The size of riser feeder shall be as indicated on directory. The dimensions of directory shall be submitted for approval for each size of panel.
- J. **CONSTRUCTION**
1. **FINISH:** Panel boxes, doors and trim for installation in dry locations, shall be zinc coated after fabrication by the hot-dip galvanizing or electroplate process on inside and outside surfaces. In damp locations, panel boards shall be enclosed and gasketed NEMA 3R type. Panel boards located outdoors or exposed to the weather shall be NEMA 3X type.
 2. **PAINTING:** Panel boxes, doors and trim shall receive a coat of approved priming paint and a second coat of approved paint in the field after installation. Paint shall be applied to the inside and outside of boxes and on both sides of trim. Panel trims and doors shall receive a third or finishing coat on the outside after installation. Approval as to texture and color must be obtained before the final coat is applied.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.7

3.7 MOTORS:

This Section sets forth the general design, construction and performance requirements, which shall apply to all motors furnished in the Contract.

- A. **MOTOR DESIGN:** All motors shall be designed to comply with the New York State Energy Conservation Construction Code and the New York City Energy Conservation Code. In the event of any conflict or inconsistency between such codes, the New York City Energy Conservation Code shall prevail. Motors shall have standard NEMA frames and shall have nameplate ratings adequate to meet the specified conditions of operation. Motor performance under variable conditions of voltage and frequency shall be within the limits set in NEMA standards, unless modified in the Specifications. Motors shall be expressly designed for the hazard duty load, voltage and frequency as specified in the Contract. All motor windings shall be copper. All motors intended to operate on a 208 volt system shall be designed and rated for 200 volts.
- B. **STANDARDS OF COMPARISON:** In the absence of specific motor specifications, in general, the best standard products of the leading motor manufacturers shall be considered as a standard for comparison. The requirements of the NEMA standards for motors and generators shall be deemed to contain the minimum requirements of performance and design.
- C. **OBJECTIONABLE NOISES:** Objectionable noises will not be tolerated and exceptionally quiet motors may be required for certain specified locations. Noise control tests as per the New York City Construction Codes may be performed as directed by the Commissioner. Such motors shall bear a nameplate lettered "Quiet Motor." Springs and slip rings shall be of approved non-ferrous material.
- D. **BEARINGS:**
 - 1. Bearings, unless specified otherwise, shall be of the ball or roller type. Motors one (1) horsepower and larger that are equipped with ball roller bearings shall also have lubrication of the pressure-relief greasing type. The Contractor furnishing four (4) or more such motors shall also furnish, as part of the Contract, a pressure grease gun of rugged design, of approximately 10 ounce capacity, complete with necessary adapters. The Contractor shall also provide 10 pounds of approved gun grease.
 - 2. For any particular unit where sleeve bearings are deemed desirable, permission for their use may be granted by the Commissioner. Motors one (1) horsepower and larger that are equipped with sleeve type bearings shall in addition to having protected accessible fittings for oiling be provided with visible means for determining normal oil level. Lubrication shall be positive, automatic and continuous.
- E. **MOTOR TERMINALS AND BOXES:** Each motor shall be furnished with flexible leads of sufficient length to extend for a distance of not less than three (3) inches beyond the face of the conduit terminal box. This box shall be furnished of ample size to make and house motor connections. These requirements shall be met irrespective of any other standards or practices. Size of cable terminals and conduit terminal box holes shall be subject to approval. For motors five (5) horsepower or larger, each terminal shall come with two (2) cast or forged copper pressure type connectors with bolts, nuts and washers. For motors of smaller ratings, connectors of other acceptable types may be furnished. For installations exposed to the weather or moist locations, terminal boxes shall be of cast iron with threaded hubs and gasketed covers. Cover screws shall be of non-corrosive material.
- F. **MOTOR TEMPERATURE RISES:** The motor nameplate temperature rises for the various types of motor enclosures shall be as listed below:

1. Open Frame	40 degrees C.
2. Totally enclosed and enclosed fan cooled	55 degrees C.



3. Explosion proof and submersible 55 degrees C.
4. Partially enclosed and drip proof 40 degrees C.

The temperature of the various parts of a motor shall meet the requirements of NEMA standards for the size and type of the motors. Tests for heating shall be made by loading the motor to its rated horsepower and keeping it so loaded for the rated time interval or until the temperature becomes constant.

- G. SPECIAL CODE INSTALLATIONS: Electrical installations covered by special publications of NBFU and by special City rulings and regulations shall comply in design and safety features with such applicable codes, regulations and rulings, and shall be furnished and installed complete with all accessories and safety devices as therein specified.
- H. MOTORS ON LIGHTING PANELS: The largest A.C. motor permitted on branch circuits of lighting panels shall not exceed 1/4 horsepower.
- I. MOTORS RATED: 1/2 horsepower and larger shall be polyphase.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8

3.8 MOTOR CONTROL EQUIPMENT:

This Section sets forth the requirements for motor controllers and associated devices. Such requirements are applicable to all motor control equipment furnished or installed.

- A. MANUFACTURER: All control equipment furnished under the Contract shall be the product of a single manufacturer. Exceptions to this rule may be granted in the case of controllers for fractional horsepower motors driving special equipment, the various units of which have been engineered to obtain specific performance.
- B. CONTROL ITEMS REQUIRED: The Contractor furnishing motors shall also furnish therewith complete disconnecting, starting and control equipment as required by the detailed Specifications, the various code authorities and for the successful operation of the driven equipment. These items include circuit breaker, magnetic starter with overload protection and low voltage release or protection, push button stations, pilot lights and alarms, float, pressure, temperature and limit switches, load transfer switches, devices for manual operation and speed controllers, etc. The Contractor shall furnish as many of these items as are required for the successful operation of the driven unit.
 1. Where a motor is to be located out of sight of the controller, the Contractor shall furnish an approved disconnecting means to be mounted near motor.
- C. TYPES OF STARTERS:
 1. SQUIRREL CAGE: A.C. motors of the squirrel cage type, rated from one (1) to 30 horsepower, shall have magnetic across the line starters; motors rated above 30 horsepower shall be furnished with reduced voltage (autotransformer type) starter or part winding start with time delay to reduce inrush current. Size of starters shall be based on 200V operation.
 2. SLIP RING: A.C. Motors of the slip-ring type shall be furnished with primary across the line starters interlocked with secondary starting and regulating equipment. The interlocking feature shall prevent starting of the motor when the secondary controller is off the initial starting point.
 3. MAGNETIC: For fractional horsepower motors, magnetic type starters are not required unless the particular method of controlling the driven equipment makes them necessary. Where individual single phase fractional horsepower motors or the sum of fractional horsepower motors controlled by an automatic device are 1/2 horsepower or more, magnetic starters and circuit breakers shall be used. Single phase A.C. motors smaller than 1/2 horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle



switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower. Means for manual operation shall be provided.

- D. **DISCONNECTING BREAKER:** All motor starters, unless otherwise specified, shall be provided with a disconnecting means in the form of a circuit breaker of the type specified under Article 3.5 **CIRCUIT PROTECTIVE DEVICES**. This disconnecting means shall be contained in the same housing with the starter and shall be operable from outside. Means shall be provided for locking the handle of the circuit breaker in the "OFF" position if it is desired to take the equipment out of service and prevent unauthorized starting.
- E. **CONTROL CABINET: DRY LOCATIONS -** All starters shall be furnished with general purpose, NEMA Type 1, sheet metal enclosures with hinged covers and baked enamel finish.
- F. **CONTROL CABINET – WATERTIGHT:** In wet locations, cast iron watertight enclosures with threaded hubs, galvanized and gasketed hinged covers shall be provided.
- G. 1. **PANELS:** Motor control devices and appliances shall be mounted on approved insulating slabs with all wiring and connections made on the back of the slabs.
2. **WIRING AND TERMINALS:** Wiring connections for currents of 100 Amperes or less may be made with copper wire or cable with special flameproof insulating coverings. Such wires shall be installed in a neat workmanlike manner, flat against the slab, and held in place by clips. Connections shall be made with pressure connectors for No. 8 AWG and larger wires, and with grommets for small stranded wires. Except for incoming and outgoing main leads, all connections shall terminate on approved connector blocks, which may be installed on the face of the slab. For small, across the line starters, the above requirements may be modified if satisfactory connections are provided.
3. **COPPER BUS:** For currents exceeding 100 Amperes, copper bus shall be used in place of wires. The bus shall be constructed of copper rods, tubing or flat strap, bent and shaped properly and securely attached to the slab in a neat and workmanlike manner. The cross section of copper shall provide sufficient areas to keep current density at not more than 1,000 Amperes per square inch.
- H. **COOPERATION:** The Contractor's subcontractor(s) who furnish electrically operated equipment shall give to the Contractor and the Contractor's electrical subcontractor full information relative to sizes and locations of apparatus furnished by them which require electrical connections.
- I. **SPARE PARTS:**
1. **FURNISH:** The Contractor shall furnish the following spare parts pertaining to equipment furnished by each subcontractor.
- One (1) set of contact fingers and springs and thermal elements for each three (3) (or fraction) of each size of magnetic contactor starter.
- One (1) holding coil for each three (3) (or fraction) of each size of magnetic contactor starter.
2. **WRAPPER MARKING:** All parts shall be delivered to the Resident Engineer neatly wrapped and boxed and plainly tagged and marked for identification and reordering.

END OF SECTION 01 35 06



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GENERAL ELECTRICAL REQUIREMENTS
01 35 06 - 16



SECTION 01 35 26
SAFETY REQUIREMENTS PROCEDURES

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. The Contractor shall comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements*". This document is included in the Information for Bidders.

1.2 SUMMARY:

- A. This Section includes administrative and general procedural requirements for Safety and Health Requirements, including:
 - 1. Definitions
 - 2. Required Safety Meeting
 - 3. Compliance with Regulations
 - 4. Submittals
 - 5. Personnel Protective Equipment
 - 6. Hazardous Materials
 - 7. Emergency Suspension of Work
 - 8. Protection of Personnel
 - 9. Environmental Protection

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 REQUIRED SAFETY MEETINGS:

- A. Prior to commencing construction, the Resident Engineer will schedule and hold a preconstruction kick-off meeting either at DDC's main office or at the Project site with representatives of the Contractor, including the principal on-site project representative and one or more safety representatives, Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract Safety requirements. The Contractor's safety requirements shall be reviewed, and implementation of safety provisions pertinent to the Work shall be discussed.
- B. The Contractor is responsible for conducting weekly documented jobsite safety meetings, given to all jobsite personnel including all subcontractors on the project, with the purpose of discussing safety topics and job specific requirements at the DDC worksite.



1.5 COMPLIANCE WITH REGULATIONS:

- A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirement for CFR Parts 1910 and 1926, and 40 CFR, Parts 61, 261, 761 and 763.
- B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.
- C. Work shall additionally comply with all applicable federal, state and local safety and health regulations.
- D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
- E. All workers working on the DDC project site are required by NYC Local Law 41 to complete the OSHA 10 –hour training course.

1.6 SUBMITTALS:

- A. The Contractor shall submit, to the Resident Engineer, copies of the Safety Program, Site Safety Plan and other required documentation in accordance with the "*New York City Department of Design and Construction Safety Requirements.*"
- B. Permits: If hazardous materials are disposed of off-site submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations to the Resident Engineer.
- C. Accident Reporting: Submit a copy of each accident report to the Resident Engineer in accordance with the "*New York City Department of Design and Construction Safety Requirements.*"
- D. All Asbestos and Lead project regulatory notifications are to be submitted to DDC's Bureau of Environmental and Geotechnical Services (BEGS) through the Resident Engineer.
- E. Request for Subcontractor Approval: Any subcontractor performing environmental work shall submit required documentation for approval to perform such work as required by DDC's BEGS.

PART II – PRODUCTS

2.1 PERSONNEL PROTECTIVE EQUIPMENT:

Special facilities, devices, equipment and similar items used by the Contractor in execution of the Work shall comply with 29 CFR Part 1910, subpart I, Part 1926, subpart E and other applicable regulations.

2.2 HAZARDOUS MATERIALS:

- A. The Contractor shall bring to the attention of the Commissioner, any material encountered during execution of the Work that the Contractor suspects to be hazardous.
- B. The Commissioner shall determine whether the Contractor shall perform tests to determine if the material is hazardous. A change to the Contract price may be provided, subject to the applicable provisions of the Contract.
- C. If the material is found to be hazardous, the Commissioner may direct the Contractor to remediate the hazard and a change to the Contract price may be provided, subject to the applicable provisions of the Contract.



PART III – EXECUTION

3.1 EMERGENCY SUSPENSION OF WORK:

- A. When the Contractor is notified by the Commissioner of noncompliance with the safety provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe condition, at no additional cost to the City.
- B. If the Contractor fails to comply promptly, all or part of the Work may be stopped by notice from the Commissioner.
- C. When, in the opinion of the Commissioner, the Contractor has taken satisfactory corrective action, the Commissioner shall provide written notice to the Contractor that work may resume.
- D. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe condition.

3.2 PROTECTION OF PERSONNEL:

- A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.
- B. Whenever practical, the work area shall be fenced, barricaded or otherwise blocked off from the Public or occupants to prevent unauthorized entry into the work area, in compliance with the requirements of Section 01 50 00, TEMPORARY FACILITIES, SERVICES AND CONTROLS, and including, without limitation, the following:
 - 1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
 - 2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe condition to the public or occupants.
 - 3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupant by accidental shifting, ignition or other hazardous activity.
 - 4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the Resident Engineer. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks or other vehicles.

3.3 ENVIRONMENTAL PROTECTION:

- A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
- B. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR 1910.95, 29 CFR 1926.52 and NYC Administrative Code Chapter 28 of Title 15.

END OF SECTION 01 35 26



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SAFETY REQUIREMENTS PROCEDURES
01 35 26 - 4



SECTION 01 35 91
HISTORIC TREATMENT PROCEDURES

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 91

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and procedural requirements for the treatment of Landmark Structures and Landmark Quality Structures, as identified in the Addendum. Specific requirements are indicated in other sections of the Specifications.
- B. This Section includes, without limitation, the following:
1. Storage and protection of existing historic materials
 2. Temporary protection of historic materials during construction
 3. General Protection
 4. Protection during use of heat-generating equipment
 5. Photographic Documentation
 6. NYC Landmarks Preservation Commission Final Approval signoffs

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- C. Section 01 33 00 SUBMITTAL PROCEDURES
- D. Section 01 77 00 CLOSEOUT PROCEDURES
- E. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Landmark Structure or Site: Any building or site which has been designated as a landmark, or any building or site within a landmark district, as designated by the New York City Preservation Commission or the New York State Historic Preservation Office.



- D. **Landmark Quality Structure:** Any building which has been determined by the City to be of landmark quality and/or historical significance.
- E. **Preservation:** To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.
- F. **Rehabilitation:** To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- G. **Restoration:** To accurately depict the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and the reconstruction of missing features from the restoration period.
- H. **Reconstruction:** To reproduce in the exact form and detail a building, structure, or artifact as it appeared at a specific period in time.
- I. **Stabilize:** To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.
- J. **Protect and Maintain:** To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.
- K. **Repair:** To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.
- L. **Replace:** To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:
 - 1. **Duplication:** Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
 - 2. **Replacement with New Materials:** Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
 - 3. **Replacement with Substitute Materials:** Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.
- M. **Remove:** To detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- N. **Remove and Salvage:** To detach items from existing construction and deliver them to the City ready for reuse.
- O. **Remove and Reinstall:** To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.
- P. **Existing to Remain or Retain:** Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.



- Q. Material in Kind: Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

1.5 SUBMITTALS:

- A. Historic Treatment Program: Submit a written plan for each phase or process, including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work.
- B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of work, submit for Commissioner's approval a written description including evidence of successful use on other comparable projects, and program of testing to demonstrate effectiveness for use on this Project.
- C. Qualification Data: For historic treatment specialists as specified and required by individual sections of the project specifications.
- D. Photographs for Designated Landmark Structures: Submit photographs in accordance with Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION and as described in this section.
- E. Record Documents: Include modifications to manufacturer's written instructions and procedures, as documented in the historic treatment preconstruction conference and as the Work progresses.

1.6 QUALITY ASSURANCE:

- A. Special Experience Requirements: Special Experience Requirements may apply to the firm that will provide Historic Treatment Services. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.
- B. Historic Treatment Preconstruction Conference: The Resident Engineer will schedule and hold a preconstruction meeting at the site in accordance with Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION.
 - 1. Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation.
 - a. Record procedures established as a result of the review and distribute to affected parties.

1.7 STORAGE AND PROTECTION OF HISTORIC MATERIALS:

- A. Removed and Salvaged Historic Materials: As specified and required by individual sections of the project specifications.
- B. Removed and Reinstalled Historic Materials: As specified and required by individual sections of the project specifications.
- C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Commissioner, items may be removed to a suitable, protected storage location during historic treatment and reinstalled in their original locations after historic treatment operations are complete.
- D. Storage and Protection: When removed from their existing location, store historic materials, at a location acceptable to the Commissioner, within a weather tight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.
 - 1. Identify removed items with an inconspicuous mark indicating their original location.



PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 PROTECTION, GENERAL:

- A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Temporary Protection of Historic Materials during Construction:
 - 1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
 - 2. Attachments of temporary protection to existing construction shall be approved by the Commissioner prior to installation.
- D. Protect landscape work adjacent to or within work areas as follows:
 - 1. Provide barriers to protect tree trunks.
 - 2. Bind spreading shrubs.
 - 3. Use coverings that allow plants to breathe and remove coverings at the end of each day. Do not cover plant material with a waterproof membrane for more than 8 hours at a time.
 - 4. Set scaffolding and ladder legs away from plants.
- E. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify Commissioner immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.
 - 1. Provide a method to prevent solids, including stone or mortar residue, from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.
 - 2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT:

- A. No roofing work requiring the use of an open flame shall be permitted on any Landmark Structure or any Landmark Quality Structure, whose roof or wall structure is made of wood or primarily of wood.
- B. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:
 - 1. Obtain Commissioner's approval for operations involving use of open-flame or welding equipment. Notification shall be given for each occurrence and location of work with heat-generating equipment.
 - 2. As far as practical, use heat-generating equipment in shop areas or outside the building.
 - 3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.



4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.
 6. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
 7. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.
 8. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 9. Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.
- C. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

3.3 PHOTOGRAPHIC DOCUMENTATION:

Photographs for Designated Landmark Structures: Show existing conditions prior to any historic treatments, including one overall photograph and two close-up photographs of all areas of work affected. Show one overall photograph and two close-up photographs of all areas of work after the successful execution of all historical treatments.

3.4 NEW YORK CITY LANDMARKS PRESERVATION COMMISSION FINAL APPROVALS SIGNOFF:

For all projects involving a Landmark Structure or Site, the Contractor, at the completion of the work, shall submit to the Commissioner, in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS, all documentation concerning the successful execution of all historic treatments. This shall include, but not be limited to, copies of all before and after photographs of historic treatments, one copy of the Contractor's as-built drawings, copies of testing and analysis results, including cleaning, mortar analysis, pointing mortars and all other information pertaining to work performed under the New York City Landmarks Preservation Commission jurisdiction.

END OF SECTION 01 35 91



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SECTION 01 40 00
QUALITY REQUIREMENTS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes the following:
- a. Definitions
 - b. Conflicting Requirements
 - c. Quality Assurance
 - d. Quality Control
 - e. Approval of Materials
 - f. Special Inspections (Controlled Inspection)
 - g. Inspections by Other City Agencies
 - h. Certificates of Approval
 - i. Acceptance Tests
 - j. Repair and Protection
- B. This Section includes administrative and procedural requirements for quality control to assure compliance with quality requirements specified in the Contract Documents.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
- D. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
- E. Provisions of this Section do not limit requirements for the Contractor to provide quality-assurance and -control services required by the Commissioner or authorities having jurisdiction.
- F. Specific test and inspection requirements are specified in the individual sections of the Specifications.
- G. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- H. COMMISSIONING: Refer to the Addendum to identify whether this project will be Commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.



1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Commissioning: A Total Quality Assurance process that includes checking the design and installation of equipment, as well as performing functional testing of the same to confirm that the installed equipment is operating and in conformance with the Contract Documents and the City's requirements.

1.5 CONFLICTING REQUIREMENTS:

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, the Contractor shall comply with the most stringent requirement as determined by the Commissioner. The Contractor shall refer any uncertainties and/or conflicting requirements to the Commissioner for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. The Contractor shall refer any uncertainties to the Commissioner for a decision before proceeding.

1.6 QUALITY ASSURANCE:

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required. Individual Specification Sections specify additional requirements.
- B. Installer Qualifications: Special Experience Requirements may apply to the firm that will install, erect or assemble specified work required for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.
- C. Manufacturer Qualifications: Special Experience Requirements may apply to the firm that will manufacture equipment, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.



- D. **Fabricator Qualifications:** Special Experience Requirements may apply to the firm that will fabricate material, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.
- E. **Professional Engineer Qualifications:** A professional engineer who is licensed to practice in the State of New York and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- G. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by the Resident Engineer.
 - 2. Notify Resident Engineer seven (7) days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Design Consultant's approval of mockups before starting work, fabrication, or construction.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed, unless otherwise directed or indicated.

1.7 QUALITY CONTROL:

- A. **City's Responsibilities:** Where quality-control services are indicated as the City's responsibility in the Specifications, the City will engage a qualified testing agency to perform these services.
 - 1. **COST OF TESTS BORNE BY THE CITY:** Where the City directs tests to be performed to determine compliance with the Specifications regarding materials or equipment, and where such compliance is ascertained as a result thereof, the City will bear the cost of such tests.
 - 2. The City will furnish the Contractor with names, addresses, and telephone numbers of testing entities engaged and a description of the types of testing and inspecting they are engaged to perform.
 - 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to the Contractor.
- B. **Contractor's Responsibility:** Tests and inspections not explicitly assigned to the City are the Contractor's responsibility. Unless otherwise indicated, the Contractor shall provide quality-control services as set forth in the Specifications and those required by Authorities having jurisdiction. The Contractor shall provide quality-control services required by Authorities having jurisdiction, whether specified or not.
 - 1. **COST OF TESTS BORNE BY CONTRACTOR –** In the case of tests which are specifically called for in the Specifications to be provided by the Contractor or tests which are required by any Authority having jurisdiction, but are not indicated as the responsibility of the City, the cost thereof shall be borne by the Contractor and shall be deemed to be included in the Contract price. The Contractor shall reimburse the City for expenditures incurred in providing tests on materials and equipment submitted by the Contractor as the equivalent of that specifically named in the Specifications and rejected for non-compliance.
 - 2. Where services are indicated as Contractor's responsibility, the Contractor shall engage a qualified testing agency to perform these quality-control services. Any testing agency engaged by the Contractor to perform quality control services is subject to prior approval by the Commissioner.



3. The Contractor shall not employ same entity engaged by the City, unless agreed to in writing by the Commissioner.
 4. The Contractor shall notify testing agencies and the Resident Engineer at least 72 hours in advance of the date and time for the performance of Work that requires testing or inspecting.
 5. Where quality-control services are indicated as Contractor's responsibility, the Contractor shall submit a certified written report, in triplicate to the Commissioner, of each quality-control service.
 6. Testing and inspecting requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
 7. The Contractor shall submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, the Contractor shall engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results shall be submitted in writing as specified in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. **Retesting/Re-inspecting:** Regardless of whether the original tests or inspections were the Contractor's responsibility, the Contractor shall provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Associated Services:** The Contractor shall cooperate with entities performing required tests, inspections, and similar quality-control services, and shall provide reasonable auxiliary services as requested. The Contractor shall notify the testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing entity in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing entities.
 6. Design mix proposed for use for material mixes that require control by the testing entity.
 7. Security and protection for samples and for testing and inspecting equipment at the Project site.
- F. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
 2. Coordinate and cooperate with the Commissioning Authority/Agent as applicable for start-up, inspection and functional testing in the implementation of the Commissioning Plan.
- G. **Manufacturer's Directions:** Where the Specifications provide that the manufacturer's directions are to be used, such printed directions shall be submitted to the Commissioner.
- H. **Inspection of Material:** In the event that the Specifications require the Contractor to engage the services of an entity to witness and inspect any material especially manufactured or prepared for use in or part of the permanent construction, such entity shall be subject to prior written approval by the Commissioner.
1. **NOTICE** - The Contractor shall give notice in writing to the Commissioner sufficiently in advance of its intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Commissioner will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials, or the Commissioner will notify the Contractor that the inspection will be made at a point



other than the point of manufacture, or the Commissioner will notify the Contractor that inspection will be waived.

- I. No Shipping Before Inspection: The Contractor shall comply with the foregoing before shipping any material.
- J. Certificate of Manufacture: When the Commissioner so requires, the Contractor shall furnish to the Commissioner authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Specifications. These certificates shall include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products being fabricated by the manufacturer. This may include such approvals as B.S.A., M.E.A., B.E.C. Advisory Board, etc.
- K. Acceptance: When materials or manufactured products shall comprise such quantity that it is not practical to make physical tests or chemical analyses directly on the product furnished, a certificate stating the results of such tests or analyses of similar materials which were concurrently produced may, at the discretion of the Commissioner, be considered as the basis for the acceptance of such material or manufactured product.
- L. Testing Compliance: The testing personnel shall make the necessary inspections and tests, and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Specifications, indicating thereon all analyses and/or test data and interpreted results thereof.
- M. Reports: Six (6) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Commissioner as a prerequisite for the acceptance of any material or equipment.
- N. Rejections: If, in making any test, it is ascertained by the Commissioner that the material or equipment does not comply with the Specifications, the Contractor will be notified thereof, and will be directed to refrain from delivering said materials or equipment, or to promptly remove it from the site or from the work and replace it with acceptable material at no additional cost to the City.
- O. Furnish Designated Materials: Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Specifications, the Contractor shall immediately proceed to furnish the designated material or equipment.

1.8 APPROVAL OF MATERIALS:

- A. Local Laws: All materials, appliances and types or methods of construction shall be in accordance with the Specifications and shall in no event be less than that necessary to conform to the requirements of the New York City Construction Codes, Administrative Code and Charter of the City of New York.
- B. Approval of Manufacturer: The names of proposed manufacturers, material suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Commissioner for approval, as early as possible, to afford proper review and analysis. No manufacturer will be approved for any materials to be furnished under the Contract unless it shall have a plant of ample capacity and shall have successfully produced similar products. All approvals of materials or equipment that are legally required by the New York City Construction Codes and other governing Authorities must be obtained prior to installation.
- C. All Materials: Fixtures, fittings, supplies and equipment furnished under the Contract shall be new and unused, except as approved by the Commissioner, and of standard first-grade quality and of the best workmanship and design. The City of New York encourages the use of recycled products where practical.
- D. INFORMATION TO SUPPLIERS - In asking for prices on materials under any item of the Contract, the Contractor shall provide the manufacturer or dealer with such complete information from the



Specifications and Contract Drawings as may in any case be necessary, and in every case the Contractor shall inform the manufacturer or dealer of all the General Conditions and requirements herein contained.

1.9 SPECIAL INSPECTIONS:

A. SPECIAL INSPECTIONS:

1. Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, shall be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project specifications, except as noted below for Form TR-3: Technical Report for Concrete Design Mix. The Special Inspector shall be an entity compliant with the requirements of the New York City Construction Codes. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring special inspection.
2. Form TR3: Technical Report Concrete Design Mix: The contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR3: Technical Report Concrete Design Mix, including, but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.
3. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring Special Inspection. The contractor shall be responsible for, and bear related costs to assure that all construction or work shall remain accessible and exposed for inspection purposes until the required inspection is completed.
4. Inspections and tests performed under "Special Inspection" shall not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".
5. The contractor must coordinate with the Resident Engineer or DDC Project Manager to provide access and schedule the work for inspection by the Special Inspector.

1.10 INSPECTIONS BY OTHER CITY AGENCIES:

- A. Letter of Completion: Just prior to substantial completion of this Project, the Commissioner will file with the Department of Buildings, an application for a Letter of Completion or a Certificate of Occupancy for the structure.
- B. Final Inspections: In connection with the above mentioned application for a Letter of Completion or a Certificate of Occupancy and before certificates of final payments are issued, the Contractor will be required to arrange for all final inspections by the inspection staff of the Department of Buildings, Fire Department or other Governmental Agencies having jurisdiction, and secure all reports, sign offs, certificates, etc., by such inspection staff or other governmental agencies, in order that a Letter of Completion or Certificate of Occupancy can be issued promptly.

1.11 CERTIFICATES OF APPROVAL:

- A. Responsibility: The Contractor shall be responsible for and shall obtain all final approvals for the work installed under the Contract in the form of such certificates that are required by all governmental agencies having jurisdiction over the work of the Contract.
- B. Transmittal: All such certificates shall be forwarded to the Commissioner through the Resident Engineer.



1.12 ACCEPTANCE TESTS:

- A. Government Agencies: All equipment and appliances furnished and installed under the Contract shall conform to the requirements of the Specifications, and shall in no event be less than that necessary to comply with the minimum requirements of the law and all of the governmental agencies having jurisdiction.
- B. Notice of Tests: Whenever the Specifications and/or any governmental agency having jurisdiction requires the acceptance test, the Contractor shall give written notice to all concerned of the time when these tests will be conducted.
- C. Energy: The City will furnish all energy, fuel, water and light required for tests.
- D. Labor and Materials: The Contractor shall furnish labor and all other material and instruments necessary to conduct the acceptance tests at no additional cost to the City.
- E. Certificates: The final acceptance by the Commissioner shall be contingent upon the Contractor delivering to the Commissioner all necessary certificates evidencing compliance in every respect with the requirements of the regulatory agencies having jurisdiction.
- F. Results: If the results of tests and Special Inspections indicate that the material or procedures do not meet requirements as set forth on the Contract Drawings or in the Specifications or are otherwise unsatisfactory, the Contractor shall only proceed as directed by the Resident Engineer. Additional costs resulting from retesting, re-inspecting, replacing of material and/or damage to the work and any delay caused to the schedule shall be borne by the Contractor.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, the Contractor shall repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

END OF SECTION 01 40 00



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QUALITY REQUIREMENTS
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SECTION 01 42 00
REFERENCES

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 DEFINITIONS:

REFER TO THE ADDENDUM, Article IX, FOR ADDITIONAL DEFINITIONS AND REVISIONS TO THE CONTRACT AND SPECIFICATIONS

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. "APPROVED," ETC. - "Approved," "acceptable," "satisfactory," and words of similar import shall mean and intend approved, acceptable or satisfactory to the Commissioner.
- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- D. "DIRECTED," "REQUIRED," ETC.- Wherever reference is made in the Contract to the work or its performance, the terms "directed," "required," "permitted," "ordered," "designated," "prescribed," "determined," and words of similar import shall, unless expressed otherwise, imply the direction, requirements, permission, order, designation or prescription of the Commissioner.
- E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings.



1.3 CODES, AGENCIES AND REGULATIONS:

A.D.A.A.G.	Americans with Disabilities Act (ADA) – Architectural Barriers Act (ABA)
B.G. & E.	Bureau of Gas and Electricity of the City of New York
B.S. & A.	New York City Board of Standards and Appeals
DOE	Department of Energy
E.C.C.C.N.Y.S.	Energy Conservation Construction Code of New York State
EPA	Environmental Protection Administration
N.Y.C.C.C.	New York City Construction Codes – includes: New York City Plumbing Code New York City Building Code New York City Mechanical Code New York City Fuel Gas Code
N.Y.S.D.O.L	New York State Department of Labor
N.Y.C.D.E.P	New York City Department of Environmental Protection
N.Y.C.E.C.	New York City Electrical Code
N.Y.C.E.C.C	New York City Energy Conservation Code
N.Y.C.F.C	New York City Fire Code
N.Y.S...D.E.C.	New York State Department of Environmental Conservation
O.S.H.A.	Occupational Safety & Health Administration

1.4 INDUSTRY STANDARDS:

- A. STANDARD REFERENCES – Unless otherwise specifically indicated in the Contract Documents, whenever reference is made to the furnishing of materials or testing thereof that conforms to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification adopted and published by that technical society, organization or body, as of the date of the bid opening, Unless the provisions of the New York City Construction Codes adopts a different or earlier dated version of such standard.
- B. APPLICABILITY OF STANDARDS: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect, to the extent referenced, as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.
- C. CONFLICTING REQUIREMENTS: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantity or quality, comply with the most stringent requirements. Immediately refer uncertainties, and requirements that are different but apparently equal, to the Commissioner in writing for a decision before proceeding.
- D. STANDARD SPECIFICATIONS - When no reference is made to a code, standard or specification, the Standard Specifications of the ASTM or the AIEE, as the case may be, shall govern.
- E. REFERENCES - Reference to a technical society, organization or body may be made in the Specifications by abbreviations. Abbreviations and acronyms used in the Specifications and other Contract Documents mean the associated name. The following names are subject to change and are



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believed, but are not assured, to be accurate and up-to-date as of the Issue Date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AGMA	American Gear Manufacturer Association
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)

REFERENCES
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ALSc	American Lumber Standard Committee, Incorporated
ALI	Automotive Lift Institute
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE/SEI	American Society of Civil Engineers, Structural Engineering Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)
AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWSC	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)



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BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CIBSE	Chartered Institute of Building Services Engineers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CGSB	Canadian General Standards Board
CIMA	Cellulose Insulation Manufacturers Association
CIPRA	Cast Iron Pipe Research Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CPSC	Consumer Product Safety Commission
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)

REFERENCES
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DASMA	Door and Access Systems Manufacturer's Association International
DHI	Door and Hardware Institute
DOC	U.S. Department of Commerce – National Institute of Standards and Technology
EIA	Electronic Industries Alliance
DOJ	U.S. department of Justice
EIMA	EIFS Industry Members Association
DOL	U.S. Department of labor
EJCDC	Engineers Joint Contract Documents Committee
DOTn	U.S. Department of Transportation
EN	European Committee of Standards
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
EVO	Efficiency Valuation Organization
FEME	Federal Emergency Management Agency
FIBA	Federation Internationale de Basketball Amateur (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FMG	FM Global (Formerly: FM - Factory Mutual System)
FMRC	Factory Mutual Research (Now FMG)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)
GS	Green Seal
GSI	Geosynthetic Institute



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HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
HUD	U.S. Department of Housing and Urban Development
IAPMO	International Association of Plumbing and Mechanical Officials
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICC	International Code Council, Inc.
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association

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MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council

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NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NIS	National Institute of Standards and Technology
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Acquired by ITS - Intertek)
PCI	Precast / Pre-stressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PPS	Power Piping Society
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RMI	Rack Manufacturers Institute
RTI	(Formerly: NTRMA - National Tile Roofing Manufacturers Association) (Now TRI)

REFERENCES
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SAE	SAE International
SCAQMD	South Coast Air Quality Management District
SCS	Scientific Certification System
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SGCC	Safety Glazing Certification Council
SHBI	Steel Heating Boiler Institute
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society



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TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute)
UL	Underwriters Laboratories Inc.
ULC	Underwriters Laboratories of Canada
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USC	United States Code
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WRI	Wire Reinforcement Institute, Inc.
USEPA	United States Environmental Protection Agency
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 42 00

REFERENCES
01 42 00 -11



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013
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No Text

REFERENCES
01 42 00 -12



SECTION 01 50 00
TEMPORARY FACILITIES, SERVICES AND CONTROLS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This section includes the following:
- a. Temporary Water System
 - b. Temporary Sanitary Facilities
 - c. Temporary Electric Power, Temporary Lighting System, And Site Security Lighting
 - d. Temporary Heat
 - e. Dewatering Facilities And Drains
 - f. Temporary Field Office for Contractor
 - g. Resident Engineer's Office
 - h. Material Sheds
 - i. Temporary Enclosures
 - j. Temporary Partitions
 - k. Temporary Fire Protection
 - l. Work Fence Enclosure
 - m. Rodent and Insect Control
 - n. Plant Pest Control Requirements
 - o. Project Identification Signage
 - p. Security Guards/Fire Guards on Site
 - q. Project Sign and Rendering
 - r. Safety

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 42 00 REFERENCES
- C. Section 01 54 11 TEMPORARY ELEVATORS AND HOISTS
- D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING
- E. Section 01 77 00 CLOSE OUT PROCEDURES

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Permanent Enclosure: As determined by Commissioner, permanent or temporary roofing that is complete, insulated, and weather tight; exterior walls which are insulated and weather tight; and all openings that are closed with permanent construction or substantial temporary closures.



- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Reports: Submit reports of tests, inspections, meter readings and similar procedures for temporary use.

1.6 PROJECT CONDITIONS:

- A. Temporary Use of Permanent Facilities and Services: The Contractor shall be responsible for the operation, maintenance, and protection of each permanent facility and service during its use as a construction facility before Final Acceptance by the City, regardless of previously assigned responsibilities.
- B. Install, operate, maintain and protect temporary facilities, services and controls.
1. Keep temporary services and facilities clean and neat in appearance.
 2. Operate temporary services in a safe and efficient manner.
 3. Relocate temporary services and facilities as needed as Work progresses.
 4. Do not overload temporary services and facilities or permit them to interfere with progress.
 5. Provide necessary fire prevention measures.
 6. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on-site.

1.7 NON-REGULAR WORK HOURS (OVERTIME):

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if the Drawings and/or the Specifications indicate that the Work, or specific components thereof, must be performed during other than regular working hours. In such case, all costs for the provision of temporary services, facilities and controls during other than regular working hours shall be deemed included in the total Contract Price.
- B. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if a change order is issued directing the Contractor to perform the Work, or specific components thereof, during other than regular working hours. In such case, compensation for the provision of temporary services, facilities and controls during other than regular working hours shall be provided through the change order.

1.8 SERVICES BEYOND COMPLETION DATE:

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall provide such temporary services, facilities and controls even if completion of all required work at the site occurs after the time fixed for such completion in Schedule A.



PART II – PRODUCTS

2.1 MATERIALS:

- A. Provide undamaged materials in serviceable condition and suitable for use intended.
- B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- C. Water: Potable and in compliance with requirements of the Department of Environmental Protection.

2.2 EQUIPMENT:

- A. Provide undamaged equipment in serviceable condition and suitable for use intended.
- B. Water Hoses: Heavy-duty abrasive-resistant flexible rubber hoses, 100 feet (30 m) long with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electric Power Cords: Grounded extension cords.
 - 1. Provide hard-service cords where exposed to abrasion or traffic.
 - 2. Provide waterproof connectors to connect separate lengths of electric cords where single lengths will not reach areas of construction activity.
 - 3. Do not exceed safe length-voltage ratio.
- D. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART III – EXECUTION:

3.1 INSTALLATION, GENERAL:

- A. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities as approved by the Resident Engineer.

3.2 TEMPORARY WATER SYSTEM:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 A

- A. TEMPORARY WATER SYSTEM - NEW FACILITIES: During construction, the Contractor shall furnish a Temporary Water System as set forth below.
 - 1. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Dept. of Environmental Protection for the schedule of charges for water use during construction. The Contractor will be responsible for payment of water charges.
 - 2. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Department of Environmental Protection's Bureau of Water Supply and obtain a permit to install the temporary water supply system. The system shall be installed and maintained for the use of the Contractor and its subcontractors. A copy of the above mentioned permit shall be filed with the Commissioner. The Contractor shall provide temporary water main, risers and waste stacks as directed and install on each floor, outlets with two (2) 3/4" hose valve connections over a barrel installed on a steel pan. The Contractor shall provide drains from the pans to the stack and house sewer and hose bibs to drain the water supply



risers and mains. During winter months, the Contractor shall take the necessary precautions to prevent the temporary water system from freezing. The Contractor shall provide repairs to the temporary water supply system for the duration of the project until said temporary system is dismantled and removed.

3. Disposition of Temporary Water System: The Contractor shall be responsible for dismantling the temporary water system when no longer required for the construction operations, or when replaced by the permanent water system installed for the project, or as otherwise directed by the Resident Engineer. All repair work resulting from the dismantling of the temporary water system shall be the responsibility of the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 B

B. TEMPORARY WATER SYSTEM – PROJECTS IN EXISTING FACILITIES:

1. When approved by the Commissioner, use of existing water system will be permitted for temporary water service during construction, as long as the system is cleaned and maintained in a condition acceptable to the Commissioner. At Substantial Completion, the Contractor shall restore the existing water system to conditions existing before initial use.
2. The Contractor shall be responsible for all repairs to the existing water system permitted to be used for temporary water service during construction. The Contractor shall be responsible to maintain the existing system in a clean condition on a daily basis, acceptable to the Commissioner.
3. The Contractor will be responsible for payment of water charges as directed by the Commissioner. Billing will be in accordance with the Department of Environmental Protection schedule of charges for Building Purposes.

C. WASH FACILITIES: The Contractor shall install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition.

1. Dispose of drainage properly.
2. Supply cleaning compounds appropriate for each condition.
3. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.

D. DRINKING WATER FACILITIES: The Contractor shall provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg. F (7 to 13 deg. C).

3.3 TEMPORARY SANITARY FACILITIES:

- A. The Contractor shall provide toilets, wash facilities and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility, and provide covered waste containers for used materials.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 B

B. SELF-CONTAINED TOILET UNITS:

1. The Contractor shall provide temporary single-occupant toilet units of the chemical, aerated re-circulation, or combustion type for use by all construction personnel. Units shall be properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Quantity of toilet units shall comply with the latest OSHA regulations.
2. Toilets: Install separate self-contained toilet units for male and female personnel. Shield toilets to ensure privacy.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 C

C. EXISTING TOILETS:

1. **TOILET FACILITIES:** When approved by the Commissioner, the Contractor shall arrange for the use of existing toilet facilities by all personnel during the execution of the work. The Contractor shall be responsible to clean and maintain facilities in a condition acceptable to the Resident Engineer and, at completion of construction, to restore facilities to their condition at the time of initial use.
2. **MAINTENANCE** - The Contractor shall maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs.
3. **NUISANCES** - The Contractor shall not cause any sanitary nuisance to be committed by its employees or the employees of its subcontractors in or about the work, and shall enforce all sanitary regulations of the City and State Health Authorities.

3.4 TEMPORARY ELECTRIC POWER, TEMPORARY LIGHTING SYSTEM, AND SITE SECURITY LIGHTING:

- A. **SCOPE:** This Section sets forth the General Conditions and procedures relating to Temporary Electric Power, Temporary Lighting System and Site Security Lighting during the construction period.

B. **TEMPORARY ELECTRIC POWER:**

The Contractor shall provide and maintain a Temporary Electric Power service and distribution system of sufficient size, capacity and power characteristics required for construction operations for all required work by the Contractor and its subcontractors, including but not limited to power for the Temporary Lighting System, Site Security Lighting, construction equipment, hoists, temporary elevators and all field offices. Temporary Electric Power shall be provided as follows:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (1)

1. **CONNECTION TO UTILITY LINES:**

- a. **Temporary Electric Power Service** for use during construction shall be provided as follows: The Contractor shall make all necessary arrangements with the Public Utility Company and pay all charges for the Temporary Electric Power system. The Contractor shall include in its total Contract Price any charges for Temporary Electric Power, including charges that may be made by the Public Utility Company for extending its electrical facilities, and for making final connections. The Contractor shall make payment directly to the Public Utility Company.
- b. **APPLICATIONS FOR METER:** The Contractor shall make application to the Public Utility Company and sign all documents necessary for, and pay all charges incidental to, the installation of a watt hour meter or meters for Temporary Electric Power. The Contractor shall pay to the Public Utility Company, all bills for Temporary Electric energy used throughout the work, as they become due.
- c. **SERVICE AND METERING EQUIPMENT** - The Contractor shall furnish and install, at a suitable location on the site, approved service and metering equipment for the Temporary Electric Power System, ready for the installation of the Public Utility Company's metering devices. The temporary service mains to and from the metering location shall be not less than 100 Amperes, 3-phase, 4-wire and shall be of sufficient capacity to take care of all demands for all construction operations and shall meet all requirements of the NYCEC.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (2)

2. CONNECTION TO EXISTING ELECTRICAL POWER SERVICE:

- a. When approved by the Commissioner, electrical power service for the Temporary Lighting System and for the operation of small tools and equipment less than 1/4 horsepower may be taken from the existing electric distribution system if the existing system is of adequate capacity for the temporary power load. The Contractor shall cooperate and coordinate with the facility custodian, so as not to interfere with the normal operation of the facility.
- b. There will be no charge to the Contractor for the electrical energy consumed.
- c. The Contractor shall provide, maintain and pay all costs for separate temporary electric power for any temporary power for equipment larger than 1/4 horsepower. When directed by the Commissioner, the Contractor shall remove its own temporary power system.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (3)

3. ELECTRICAL GENERATOR POWER SERVICE:

- a. When connection to Utility Lines or existing facility electric service is not available or is not adequate to supply the electric power need for construction operations, the Contractor shall provide self-contained generators to provide power beyond that available.
- b. Pay for all energy consumed in the progress of the Work, exclusive of that available from the existing facility or Utility Company.
- c. Provide for control of noise from the generators.
- d. Comply with the Ultra Low Sulfur Fuel in Non-Road Vehicles requirements as set forth in Article 5.4 of the Contract.

C. USE OF COMPLETED PORTIONS OF THE ELECTRICAL WORK:

1. **USE OF MAIN DISTRIBUTION PANEL:** As soon as the permanent electric service feeders and equipment, metering equipment and main distribution panel are installed and ready for operation, the Contractor shall have the temporary lighting and power system changed over from the temporary service points to the main distribution panel.
2. **COST OF CHANGE OVER -** The Contractor shall be responsible for all costs due to this change over of service and it shall also make application to the Public Utility Company for a watt hour meter to be set on the permanent meter equipment.
3. The requirements for temporary electric power service specified herein shall be adhered to after change over of service until final acceptance of the project.
4. **NO EXTRA COST -** The operation of the service and switchboard equipment shall be under the supervision of the Contractor, but this shall in no way be interpreted to mean the acceptance of such part of the installation or relieve the Contractor from its responsibility for the complete work or any part thereof. There shall be no additional charge for supervision by the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 D

D. TEMPORARY LIGHTING SYSTEM:

1. The Contractor shall provide adequate service for the temporary lighting system, or a minimum of 100 Amperes, 3-phase, 4-wire service for the temporary lighting system, whichever is



- greater, and make all necessary arrangements with the Public Utility Company and pay all charges by them for the Temporary Lighting System
2. The Contractor shall furnish and connect to the metered service point, a Temporary Lighting System to illuminate the entire area where work is being performed and points adjacent to the work, with separately fused circuits for stairways and bridges. Control switches for stairway circuits shall be located near entrance on ground floor.
 3. ITEMS: The Temporary Lighting System provided by the Contractor shall consist of wiring, fixtures, left-hand double sockets, (one (1) double socket for every 400 square feet, with one (1) lamp and one (1) three-prong outlet) lamps, fuses, locked type guards, pigtails and any other incidental material. Additional details may be outlined in the detailed Specifications for the Electrical Work. Changes may be made, provided the full equivalent of those requirements is maintained.
 4. The Temporary Lighting System shall be progressively installed as required for the advancement of the work under the Contract.
 5. RELOCATION: The cost for the relocation or extension of the original Temporary Lighting System, required by the Contractor or its subcontractors, that is not required due to the normal advancement of the work, as determined by the Resident Engineer, shall be borne by the Contractor.
 6. PIGTAILS: shall be furnished with left-hand sockets with locked type guards and 40 feet of rubber covered cable. The Contractor shall furnish and distribute a minimum of three (3) complete pigtails to each subcontractor. See the detailed Electrical Specifications for possible additional pigtails required.
 7. LAMPS: The Contractor shall furnish and install one (1) complete set of lamps, including those for the trailers. Broken and burned out lamps in the temporary lighting system, DDC field office and construction trailers, shall be replaced by the Contractor. All lamps shall be compact fluorescent.
 8. CIRCUIT PROTECTION: The Contractor shall furnish and install GFI protection for the Temporary Lighting and Site Security Lighting Systems.
 9. MAINTENANCE OF TEMPORARY LIGHTING SYSTEM:
 - a. The Contractor shall maintain the Temporary Lighting System in good working order during the scheduled hours established.
 - b. The Contractor shall include in its total Contract Price all costs in connection with the Temporary Lighting System, including all costs for installation, maintenance and electric power.
 10. REMOVAL OF TEMPORARY LIGHTING SYSTEM: The temporary lighting system shall be removed by the Contractor when authorized by the Commissioner.
 11. HAND TOOLS: The temporary lighting system shall not be used for power purposes, except that light hand tools not larger than 1/4 horsepower may be operated from such system by the Contractor and its subcontractors.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 E

- E. SITE SECURITY LIGHTING (FOR NEW CONSTRUCTION ONLY):
1. The Contractor shall furnish, install and maintain a system of site security lighting, as herein specified, to illuminate the construction site of the project, and it shall be connected to and energized from the Temporary Lighting System. All costs in connection with site security lighting shall be deemed included in the total Contract Price.
 2. It is essential that the site security lighting system be completely installed and operating, at the earliest possible date. The Contractor shall direct its subcontractors to cooperate, coordinate and exert every effort to accomplish an early complete installation of the site security lighting system. After the system is installed and in operation, if a part of the system interferes with the work of any trade, the Contractor shall be completely responsible for the expense of removing,



- relocating and replacing all equipment necessary to reinstate the system to proper operating conditions.
3. The system shall consist of flood lighting by pole mounted guarded sealed-beam units. Floodlight units shall be mounted 16 feet above grade. Floodlights shall be spaced around the perimeter of the site to produce an illumination level of no less than one (1) foot candle around the perimeter of the site, as well as in any potentially hazardous area or any other area within the site that might be deemed by the Resident Engineer to require security illumination. The system shall be installed in a manner acceptable to the Resident Engineer. The first lighting unit in each circuit shall be provided with a photoelectric cell for automatic control. The photoelectric cell shall be installed as per manufacturer's recommendations.
 4. All necessary poles shall be furnished and installed by the Contractor.
 5. The site security lighting shall be kept illuminated at all times during the hours of darkness. The Contractor shall, at its own expense, shall keep the system in operation, and shall furnish and install all material necessary to replace all damaged or burned out parts.
 6. The Contractor shall be on telephone call alert for maintaining the system during the operating period stated above.
 7. All materials and equipment furnished under this section shall remain the property of the Contractor and shall be removed and disposed of by the Contractor when authorized in writing by the Resident Engineer.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB SECTION 3.5

3.5 TEMPORARY HEAT:

A. GENERAL:

1. Definition: The provision of Temporary Heat shall mean the provision of heat in order to permit construction to be performed in accordance with the Progress Schedule during all seasons of the year and to protect the work from the harmful effects of low temperature. In the event the building, or any portion thereof, is occupied during construction, the provision of Temporary Heat shall include the provision of heat to permit normal operations in such occupied areas.
 - a. The provision of Temporary Heat shall be in accordance with the temperature requirements set forth in Sub-Section 3.5 C herein.
 - b. The provision of Temporary Heat shall include the provision of: 1) all fuel necessary and required, 2) all equipment necessary and required, and 3) all operating labor necessary and required. Operating labor shall mean that minimum force required for the safe day to day operation of the system for the provision of Temporary Heat and shall include, without limitation, heating maintenance labor and/or Fire Watch as required by NYC Fire Department regulations. Operating labor may be required seven (7) days per week and during other than normal working hours, for the period of time required by seasonal weather conditions.
 - c. In the event the building, or any portion thereof, is occupied and the Project involves the replacement, modification and/or shut down of the permanent heating system, or any key component thereof; and such system is a combined system which furnishes domestic hot water for the building occupants, the provision of Temporary Heat shall include the provision of domestic hot water at the same temperature as the system which is being replaced. Domestic hot water shall be provided in accordance with the phasing requirements set forth in the Contract Documents.
2. Responsibility: The Contractor's responsibility for the provision of Temporary Heat, including all expenses in connection therewith, shall be as set forth below:
 - a. Projects Involving Enclosure of the Building:



- 1) Prior to Enclosure - Until the Commissioner determines that the building has been enclosed, as set forth in Sub-Section 3.5 B; the Contractor shall be responsible for the provision of Temporary Heat.
- 2) Post Enclosure - Once the Commissioner determines that the building, or any portion thereof, has been enclosed, as set forth in Sub-Section 3.5 B, the Contractor shall be responsible for the provision of Temporary Heat by one or more of the following means: 1) by an existing heating system (if any), 2) by a permanent heating system which is being installed as part of the Project, or 3) by a temporary heating system(s).
- 3) The Contractor shall, within two (2) weeks of the kick-off meeting, submit to DDC for review its proposed plan to provide Temporary Heat. Such plan is subject to approval by the Resident Engineer. The Contractor shall provide Temporary Heat in accordance with the approved plan until written acceptance by the Commissioner of the work of all Contractors, including punch list work, unless directed otherwise in writing by the Commissioner. The responsibility of the Contractor provided for herein is subject to the exception set forth in Sub-Section 3.5 A.2 (b) herein.

b. Projects not involving Enclosure of the Building:

- 1) If the Project involves the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, the Contractor shall be responsible for the provision of Temporary Heat, except as otherwise provided in Sub-Section 3.5 H.3(b).2 herein.
- 2) If the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof; there is no Contractor responsibility of the provision of Temporary Heat, unless otherwise specified in the Contract Documents. However, if the Commissioner, pursuant to Sub-Section 3.5 H.3 (b).1 herein, determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat and shall be paid for the same in accordance with Sub-Section 3.5 H.3 (b).1 herein.

B. ENCLOSURE OF STRUCTURES:

1. Notification: The Contractor shall notify all its subcontractors and the Resident Engineer at least 30 days prior to the anticipated date that the building(s) will be enclosed.
2. Commissioner Determination: The Commissioner shall determine whether the building, or any portion thereof, has been enclosed. As indicated in Sub-Section 3.5 A.2 above, once the building has been enclosed, the Contractor shall be responsible for the provision of Temporary Heat. The Commissioner's determination with respect to building enclosure shall be based upon all relevant facts and circumstances, including without limitation, 1) whether the building meets the criteria set forth in Paragraph 3 below, and 2) whether the openings in the building, such as doorways and windows, have been sufficiently covered so as to provide reasonable heat retention and protection from the elements.
3. Criteria for enclosure:
 - a. Roof Area:
 - 1) A building shall be considered to be roofed when the area to be roofed is covered by a permanent structure and all openings through the permanent structure are covered and protected by temporary covers as described in Paragraph (c) below.
 - 2) Intermediate floor structures of multi-floor buildings shall be considered to be roofed subject to the same requirements of the building roof.



- 3) The final roofing system need not be in place for the building or structure to be determined to be enclosed; provided, however, all openings through the permanent structure covering the roof must be covered and protected by temporary covers, as described in Paragraph (c) below.
- b. Walls: For the walls to be determined to be enclosed permanent exterior wall elements or facing material must be in place and all openings must be covered and protected by temporary covers, as described in Paragraph (c) below.
- c. Temporary Covers: In order to be acceptable, temporary covers must be securely fixed to prevent the entrance of rain, snow and direct wind. The minimum material requirements for temporary covers are as follows: 1) minimum 10 mil. Plastic 2) minimum 12 ounce waterproof canvas tarpaulins, or 3) a minimum three-eighths (3/8) inch thickness exterior grade plywood.
- d. Temporary covers for openings shall be the responsibility of the Contractor and such work shall be deemed included in the Contract price.

C. TEMPERATURE REQUIREMENTS:

- 1. Unoccupied Buildings: The temperature requirement for the provision of Temporary Heat in unoccupied buildings shall be the GREATER of the following: 1) 50 degrees Fahrenheit, or 2) the temperature requirement for the particular type of work set forth in the Contract Documents.
- 2. Occupied Buildings: The temperature requirement for the provision of Temporary Heat in occupied buildings, or portions thereof, shall be the GREATER of the following: 68 degrees Fahrenheit or the temperature requirement for the particular type of work set forth in the Contract Documents.

D. DURATION:

- 1. The Contractor shall be required to provide Temporary Heat until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall be responsible for the provision of Temporary Heat for the time specified herein, regardless of any delays in completion of the Project, including delays that result in the commencement of the provision of Temporary Heat during a season that is later than that which may have been originally anticipated. The Contractor shall include in its Total Contract Price all expenses in connection with the provision of Temporary Heat in accordance with the requirements specified herein.
- 2. The total Contract duration is set forth in consecutive calendar days in Schedule A of the Addendum. The Table set forth below indicates the number of full heating seasons that are deemed included in various contract durations, which are specified in consecutive calendar days (ccds). At a minimum, a full heating season shall extend from October 15th to April 15th.

Contract Duration	Full Heating Seasons Required
up to 360 ccds	1 full heating season
360 to 720 ccds	2 full heating seasons
more than 720 ccds	3 full heating seasons

E. METHOD OF TEMPORARY HEAT:

- 1. The method of temporary heat shall be in conformance with the New York City Fire Code and with all applicable laws, rules and regulations. Prior to implementation, such method shall be subject to the written approval of the Commissioner.
- 2. The method of temporary heat shall:
 - a. Not cause the deposition of dirt or smudges upon any finished work or cause any defacement or discoloration to the finished work.
 - b. Not be injurious or harmful to people or materials.



- c. Portable fueled heating devices or equipment SHALL NOT BE ALLOWED for use as temporary heat other than construction-related curing or drying in conformance with the NYC Fire Code.
3. No open fires will be permitted.

F. TEMPORARY HEATING SYSTEM:

1. The temporary system for the provision of Temporary Heat provided by the Contractor following enclosure of the building shall be complete including, subject to provisions of paragraph E above, boilers pumps, radiators, space heaters, water and heating piping, insulation and controls. The temporary system for the provision of Temporary Heat shall be capable of maintaining the minimum temperature requirements set forth in Paragraph C above.

G. COORDINATION:

1. The Contractor, in the provision of Temporary Heat, shall coordinate its operations in order to insure sufficient and timely performance of all required work, including work performed by trade subcontractors. The Contractor shall supply and pay for all water required and used in the building for the operation of the heating system(s) for the purpose of Temporary Heat. The Contractor shall include all expenses in connection with the supply of water for Temporary Heat in its Total Contract Price. During the period in which Temporary Heat in an enclosed building is being furnished and maintained, the Contractor shall provide proper ventilating and drying, open and close the windows and other openings when necessary for the proper execution of the work and also when directed by DDC. The Contractor shall maintain all permanent or temporary enclosures at its own expense.

H. USE OF PERMANENT HEATING SYSTEMS:

1. Use of Permanent Heating System for Temporary Heat after Building Enclosure
 - a. The Contractor shall provide all labor and materials to promptly furnish and set all required equipment and convectors and/or radiators, piping, valves, fitting, etc., in ample time for their use for the provision of Temporary Heat after enclosure of the building.
 - b. New portions of the permanent heating system that are used for furnishing Temporary Heat shall be left in near perfect condition when delivered to the City for operation. Any repairs required, other than for ordinary wear and tear on the equipment, shall be made by the Contractor at his/her expense. The starting date for the warranty or guarantee period for such equipment shall be the date of Substantial Completion acceptance.
 - c. In the event that the Contractor does not advance the installation of the permanent heating system in sufficient time to permit its use for Temporary Heat as determined by DDC, the Contractor shall furnish and install a separate system for the provision of Temporary Heat as required to maintain the minimum temperature requirements set forth in Paragraph C above.
2. All equipment for the system for the provision of Temporary Heat shall be placed so as to comply with the requirements specified hereinbefore, and shall be connected, disconnected and suitably supported and located so as to permit construction work, including finish work such as wall plastering and painting, to proceed. The installation of the system for the provision of Temporary Heat by the Contractor, including the placing of ancillary system equipment, shall be coordinated with the operations of all trade subcontractors so as to insure sufficient and timely performance of the work. Once the permanent heating system is operating properly, the Contractor shall remove all portions of the system for Temporary Heat not part of the permanent heating system.
3. Temporary Heat Allowance for Special Conditions or and/or Unforeseen Circumstances.
 - a. The City may establish an allowance in the Contract for payment of costs and expenses in connection with the provision of Temporary Heat as set forth herein. If established, the City will include an amount for such allowance on the Bid Form, and the Contractor shall



include such allowance amount in its Total Contract Price. The Contractor shall only be entitled to payment from this allowance under the conditions and in accordance with the requirements set forth below. In the event this allowance or any portion thereof remains unexpended at the conclusion of the Contract, such allowance shall remain the sole property of the City. Should the amount of the allowance be insufficient to provide payment for the expenses specified below, the City will increase the amount of the allowance.

- b. The allowance set forth herein may be utilized only under the conditions set forth below.
 1. In the event the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, and the Commissioner determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat, as directed by the Commissioner. The City shall pay such Contractor for all costs for labor, material, and equipment necessary and required for the same. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.
 2. In the event the Commissioner determines that there is a need for maintenance of the permanent heating system by the Contractor after written acceptance by the Commissioner of the work, and that the need for such maintenance is not the fault of the Contractor, the Contractor shall provide the required maintenance of the permanent heating system for the period of time directed by the Commissioner. The City shall pay the Contractor for the cost of direct labor and fuel necessary and required in connection with such maintenance, excluding the cost of any foremen or other supervision. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.
- c. Payment for Fuel Costs - Payment from the allowance set forth herein for the cost of fuel necessary and required to operate the system for the provision of Temporary Heat or to maintain the permanent heating system under the conditions set forth in Paragraph b above shall be limited to the direct cost of such fuel. The Contractor shall not be entitled to any overhead and/or profit for such fuel costs. In order to receive payment for such fuel costs, the Contractor must present original invoices for the same. DDC reserves the right to furnish the required fuel.

I. RELATED ELECTRICAL WORK:

1. The Contractor shall be responsible for providing the items set forth below and shall include all expenses in connection with such items in its Total Contract Price. The Contractor shall provide such items promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
 - a. The Contractor shall provide all labor, materials, equipment and power necessary and required to furnish and maintain any temporary or permanent electrical connections to all equipment specified to be connected as part of the work of his Contract.
 - b. The Contractor shall supply and pay for all power necessary and required for the operation of the system for the provision of Temporary Heat and/or the permanent heating system used for Temporary Heat. Such power shall be provided by the Contractor for the duration the Contractor is required to provide Temporary Heat, as set forth in Sub-section 3.5 D herein.
2. In providing the items set forth in Paragraph 1 above, the Contractor is advised that labor may be required seven (7) days a week and/or during other than normal working hours for the period of time required by seasonal weather conditions.



J. RELATED PLUMBING WORK:

1. The Contractor shall be responsible for providing all labor, materials and equipment necessary and required to furnish and maintain all temporary or permanent connections to all equipment or plumbing outlets specified to be provided as part of the work of this Contract. The Contractor shall include all expenses in connection with such items of work in its Total Contract Price. The Contractor shall provide such items of work promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
2. In the event portions of the permanent plumbing equipment furnished by the Contractor as part of the work of this Contract are used for the provision of Temporary Heat either during construction or prior to acceptance by the City of the complete plumbing system, the Contractor shall be responsible to provide such plumbing equipment to the City in near perfect condition and shall make any repairs required, other than for ordinary wear and tear on the equipment, at his expense. The starting date for warranty and/or guarantee period for such plumbing equipment shall be the date of Substantial Completion acceptance by the City.
3. For Projects requiring the installation of new and/or modified gas service, as well as associated meter installations, the Contractor shall promptly perform all required filings and coordination with the Utility Companies in order to expedite the installation, testing, and approval of the gas service and associated meter(s).

3.6 STORM WATER CONTROL, DEWATERING FACILITIES AND DRAINS:

A. PUMPING:

1. Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rainfall.
2. Contractor shall furnish and install all necessary automatically operated pumps of adequate capacity with all required piping to run-off agencies, so as to maintain the excavation, cellar floor, pits and exterior depressions and excavations free from accumulated water during the entire period of construction and up to the date of final acceptance of work of the Contract.
3. All pumps shall be maintained at all times in proper working order.
4. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
5. Remove snow and ice as required to minimize accumulations.

3.7 TEMPORARY FIELD OFFICE FOR CONTRACTOR:

- A. The Contractor shall establish a temporary field office for its own use at the site during the period of construction, at which readily accessible copies of all Contract Documents shall be kept.
- B. The field office shall be located where it will not interfere with the progress of any part of the work or with visibility of traffic control devices.
- C. **CONTRACTOR'S REPRESENTATIVE:** In charge of the office there shall be a responsible and competent representative of the Contractor, duly authorized to receive orders and directions and to put them into effect.
- D. Arrangements shall be made by the Contractor whereby its representative may be readily accessible by telephone.
- E. All temporary structures shall be of substantial construction and neat appearance, and shall be painted a uniform gray unless otherwise directed by the Commissioner.
- F. **CONTRACTOR'S SIGN -** The Contractor shall post and keep posted, on the outside of its field office, office or exterior fence or wall at site of work, a legible sign giving full name of the company, address of the company and telephone number(s) of responsible representative(s) of the firm who can be reached in event of an emergency at any time.



- G. **ADVERTISING PRIVILEGES** - The City reserves the right to all advertising privileges. The Contractor shall not cause any signs of any kind to be displayed at the site unless specifically required herein or authorized by the Commissioner.

3.8 DDC FIELD OFFICE:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 A

A. **OFFICE SPACE IN EXISTING BUILDING:**

1. The Resident Engineer will arrange for office space for sole use in the building where work is in progress. The Contractor shall provide and install a lockset for the door to secure the equipment in the room. The Contractor shall provide two (2) keys to the Resident Engineer. After completion of the project the Contractor shall replace the original lockset on the door and ensure its proper operation.
2. In addition to equipment specified in Sub-Section 3.8 D, the Contractor shall provide, for exclusive use of the DDC Field Office, the following:
 - a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two metal (2) lockers, single units, 15" x 18" x 78" overall including 6" legs. Lockers to have flat key locks with two (2) keys each, General Steel products or approved equal. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks, approximately 52"H x 28 1/2"D x 18"W.
 - b. One (1) 9000 B.T.U air conditioner or as directed by Commissioner. Wiring for the air conditioner shall be minimum No. 12 AWG fed from individual circuits in the fuse box.
 - c. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
 - d. Two (2) metal wastebaskets.
 - e. One (1) fire extinguisher, one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
 - f. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the project as required.
3. The Contractor shall provide one (1) telephone, where directed and shall pay all costs for telephone service for calls within the New York City limits for the duration of the project.
4. All furniture and equipment, except computer equipment specified in Sub-Section 3.8 D.3, shall remain the property of the Contractor.
5. Computer Workstation quantities shall be provided as specified in Sub-Section 3.8 B 3-a for DDC Managed Projects, or Sub-Section 3.8 B 3-b for CM Managed Projects.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 B

B. **DDC FIELD OFFICE TRAILER:**

1. **GENERAL:** The Contractor shall, for the time frame specified herein, provide and maintain at its own cost and expense a DDC Construction Field Office and all related items as specified herein [hereinafter collectively referred to as the "DDC Field Office"] for the exclusive use of the Resident Engineer. The DDC Field Office shall be located at the Project site and shall be solely dedicated to the Project. Provision of the DDC Field Office shall commence within THIRTY (30) days from Notice to proceed and shall continue through forty-five (45) days after Substantial Completion of the required construction at the Project site. The Contractor shall remove the DDC Field Office forty-five (45) days after Substantial Completion of the required construction, or as otherwise directed in writing by the Commissioner.
2. **TRAILER:** The Contractor shall provide at its own cost and expense a mobile office trailer for use as the DDC Field Office. The Contractor shall install and connect all utility services to the



- trailer within thirty (30) days from Notice to Proceed. The trailer shall have equipment in compliance with the minimum requirements hereinafter specified. Any permits and fees required for the installation and use of said trailer shall be borne by the Contractor. The trailer including furniture and equipment therein, except computer equipment specified in Sub-Section 3.8D.3 herein, shall remain the property of the Contractor.
3. Trailer shall be an office type trailer of the size specified herein, with exterior stairs at entrance. Trailer construction shall be minimum 2 x 4 wall construction fully insulated with paneled interior walls, pre-finished gypsum board ceilings and vinyl tile floors.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8.B.3a or SUB-SECTION 3.8.B.3b

- a. DDC Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
 - 1) Overall length: 32 Feet
Overall width: 10 Feet
 - 2) Interior Layout:
Provide one (1) general office/conference room area and one (1) private office at one end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
 - 3) Computer Workstation: Provide one (1) complete computer workstation, as specified in Sub-Section 3.8.D herein, in the private office area as directed by the Resident Engineer.
- b. CM Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
 - 1) Overall length: 50 Feet
Overall width: 10 Feet
 - 2) Interior Layout:
Provide one (1) large general office/conference room in the center of the trailer and two (2) private offices, one (1) each at either end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
 - 3) Computer Workstation:
Provide three (3) complete computer workstations as specified in Sub-Section 3.8.D herein. Provide one (1) each complete computer workstation in each private office and one (1) complete computer workstation at the secretarial position as directed by the Resident Engineer.
4. The exterior of the trailer shall be lettered with black block lettering of the following heights with white borders:

CITY OF NEW YORK	2-1/2"
DEPARTMENT OF DESIGN AND CONSTRUCTION	3-3/4"
DIVISION OF PUBLIC BUILDINGS	3-1/2"
DDC FEILD OFFICE	2-1/2"

NOTE: In lieu of painting letters on trailer the Contractor may substitute a sign constructed of a good quality weatherproof material with the same type and size of lettering above.
5. All windows and doors shall have aluminum insect screens. Provide wire mesh protective guards at all windows.
6. The interior shall be divided by partitions into general and private office areas as specified herein. Provide a washroom located adjacent to the private office and a built-in wardrobe closet opposite the washroom. Provide a built-in desk in the private office(s) with fixed overhead shelf and clearance below for two (2) file cabinets.



7. Provide a built-in drafting or reference table, located in the general office/conference room, at least 60 inches long by 36 inches wide with cabinet below and wall type plan rack at least 42 inches wide.
8. The washroom shall be equipped with a flush toilet, wash basin with two (2) faucets, medicine cabinet, complete with supplies and a toilet roll tissue holder. Plumbing and fixtures shall be approved house type, with each appliance trapped and vented and a single discharge connection. Five (5) gallon capacity automatic electric heater for domestic hot water shall be furnished.
9. HVAC: The trailer shall be equipped with central heating and cooling adequate to maintain a temperature of 72 degrees during the heating season and 75 degrees during the cooling season when the outside temperature is 5 degrees F. winter and 89 degrees F. summer.
10. Lighting shall be provided via ceiling mounted fluorescent lighting fixtures to a minimum level of 50 foot candles in the open and private office(s) along with sufficient lighting in the washroom. Broken and burned out lamps shall be replaced by the Contractor. A minimum of four (4) duplex convenience outlets shall be provided in the open office and two (2) each in the private office(s). These outlets shall be in addition to special outlet requirements for computer stations, copiers, HVAC unit, etc.
11. Electrical service switch and panel shall be adequately sized for the entire trailer load. Provide dedicated circuits for HVAC units, hot water heater, copiers and other equipment as required. All wiring and installation shall conform to the New York City Electrical Code.
12. The following movable equipment shall be furnished:
 - a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks and two (2) full ball bearing two (2) drawer vertical legal filing cabinets in each private office located below built-in desk.
 - b. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
 - c. Three (3) metal wastebaskets.
 - d. One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
 - e. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Contract as required.
13. TRAILER TEMPORARY SERVICE: Plumbing and electrical work required for the trailer will be furnished and maintained as below.
 - a. PLUMBING WORK: The Contractor shall provide temporary water and drainage service connections to the DDC Field Office trailer for a complete installation. Provide all necessary soil, waste, vent and drainage piping.

Contractor to frost-proof all water pipes to prevent freezing.

 - 1) REPAIRS, MAINTENANCE: The Contractor shall provide repairs for the duration of the project until the trailer is removed from the site.
 - 2) DISPOSITION OF PLUMBING WORK: At the expiration of the time limit set forth in Sub-Section 3.8 B 1 herein, the temporary water and drainage connections and piping to the DDC Field Office trailer shall be removed by the Contractor and shall be plugged at the mains. All piping shall become the property of the Contractor for Plumbing Work and shall be removed from the site, all as directed. All repair work due to these removals shall be the responsibility of the Contractor.
 - b. ELECTRICAL WORK:
 - 1) The Contractor shall furnish, install and maintain a temporary electric feeder to the DDC Field Office trailer immediately after it is placed at the job site.
 - 2) The temporary electrical feeder and service switch/fuse shall be adequately sized based on the trailer load and installed per the New York City Electrical Code and complying with utility requirements.



- 3) Make all arrangements and pay all costs to provide electric service.
- 4) The Contractor shall pay all costs for current consumed and for maintenance of the system in operating condition, including the furnishing of the necessary bulb replacements lamps, etc., for the duration of the project and for a period of forty-five (45) days after the date of Substantial Completion.
- 5) Disposition of Electric Work: At the expiration of the time limit set forth, the temporary feeder, safety switch, etc., shall be removed and disposed of as directed.
- 6) All repair work due to these removals shall be the responsibility of the Contractor.

c. MAINTENANCE

- 1) The Contractor shall provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels and soap and maintain the DDC Field Office in first-class condition, including all repairs, until the trailer is removed from the site.
- 2) Supplies: The Contractor shall be responsible for providing (a) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (b) all supplies in connection with required computers and printers, including without limitation, an adequate supply of blank CD's/DVD's, storage boxes for blank CDs/DVDs, and paper and toner cartridges for the printer.
- 3) Risk of Loss: The entire risk of loss with respect to the DDC Field Office and equipment shall remain solely and completely with the Contractor. The Contractor shall be responsible for the cost of any insurance coverage determined by the Contractor to be necessary for the Field Office.
- 4) At forty-five (45) days after the date of Substantial Completion, or sooner as directed by the Commissioner, the Contractors shall have all services disconnected and capped to the satisfaction of the Commissioner. All repair work due to these removals shall be the responsibility of the Contractor.

d. TELEPHONE SERVICE: The Contractor shall provide and pay all costs for the following telephone services for the DDC Field Office trailer:

- 1) Separate telephone lines for one (1) desk phone in each private office.
- 2) One (1) wall phone (with six (6) foot extension cord) at plan table.
- 3) Separate telephone lines for the fax machine and internet access in each private office. Telephone service shall include voice mail.
- 4) A remote bell located on outside of trailer
- 5) The telephone service shall continue until the trailer is removed from the site.

e. PERMITS: The Contractor shall make the necessary arrangements and obtain all permits and pay all fees required for this work.

C. RENTED SPACE: The Contractor has the option of providing, at its cost and expense, rented office or store space in lieu of trailer. Said space shall be in the immediate area of the Project and have adequate plumbing, heating and electrical facilities. Space chosen by the Contractor for the DDC Field Office must be approved by the Commissioner before the area is rented. All insurance, maintenance and equipment, including computer workstations specified in Sub-Section 3.8 D in quantities required as specified in Sub-Section 3.8 B 3 for the DDC Field Office trailer, shall also apply to rented spaces.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 D

D. ADDITIONAL EQUIPMENT FOR THE DDC FIELD OFFICE:

1. The Contractor shall provide a high volume copy machine (50 copies per minute) for paper sizes 8½ x 11, 8½ x 14 & 11 x 17. Copier shall remain at job site until the DDC Field office trailer is removed from the site.



2. The Contractor shall furnish a fax machine and a telephone answering machine at commencement of the project for the exclusive use of the DDC Field Office. All materials shall be new, sealed in manufacturer's original packaging and shall have manufacturers' warranties. All items shall remain the property of the City of New York at the completion of the project.
3. **COMPUTER WORKSTATION:** The Contractor shall provide one complete computer workstation, in quantities specified in Sub-Section 3.8.B.4, as specified herein:
 - a. **Hardware/Software Specification:**
 - 1) **Computer Equipment** - Computers shall be provided for all contracts that have a Total Consecutive Calendar Days for construction duration as set forth in Schedule "A" of 180 CCD's or greater. Contracts of lesser duration shall not require computers.
 - 2) Computers furnished by the Contractor for use by City Personnel, for the duration of the contract, shall be in accordance with Specific Requirements, contained herein, shall remain the property of the City of New York at the completion of the project and shall meet the following minimum requirements:
 - 3) **Personal Computer(s) – Each Workstation Configuration.**
 - a) **Make and Model:** Dell; HP; Gateway; Acer; or, an approved equivalent. (Note: an approved equivalent requires written approval of the Assistant Commissioner of ITS.)
 - b) **Processor:** i5-2400 (6MB Cache; 3.1GHz) or faster computer - Single Processor.
 - c) **System RAM:** Minimum of 4GB (Gigabytes) Dual Channel DDR3 SDRAM at 1333MHz – 2 DIMMSs
 - d) **Hard Disk Drive(s):** 500 GB (Gigabytes) Serial ATA (7200RPM) w/DataBurst Cache, or larger.
 - e) **CD-RW:** Internal CD-RW, 48x Speed or faster.
 - f) **16xDVD+/-RW** DVD Burner (with double layer write capability) 16x Speed or faster
 - g) **I/O Ports:** Must have at least one (1) Serial Port, one (1) Parallel Port, and three (3) USB Ports.
 - h) **Video Display Card:** HD Graphics (VGA, HDMI) with a minimum of 64 MB of RAM.
 - i) **Monitor:** 22" W, 23.0 Inch VIS, Widescreen, VGA/DVI LCD Monitor.
 - j) **Available Exp. Slots:** System as configured above shall have at least two (2) full size PCI Slots available.
 - k) **Network Interface:** Integrated 10/100/1000 Ethernet card.
 - l) **Other Peripherals:** Optical scroll Mouse, 101 Key Keyboard, Mouse Pad and all necessary cables.
 - m) **Software Requirement:** Microsoft Windows 7 Professional SP1, 32 bit; Microsoft Office Professional 2010 or 2013; Microsoft Project 2010; Adobe Acrobat reader; Anti-Virus software package with 2 year updates subscription; and, either Auto Cad LT or Microsoft



Visio Standard Edition, as directed by the Resident Engineer.

- 4) DDC Field Office Specs: DDC Field Offices requiring computers shall be provided with the following:
 - a) One (1) broad-band internet service account. Wideband Internet connectivity at a minimum throughput of 15 Mbps download and 5 Mbps upload is required at each field office location with 1-5 staffers. For larger field offices see table below for minimum required upload speeds. Telephone service should be bundled together with Internet connectivity. Because of throughput requirements Verizon FIOS is the preferred connectivity provider where available.

Office Personnel #	Upload Speeds (Minimum)
1 – 5	5 Mbps
6 – 10	10 Mbps
11 – 15	15 Mbps
16 – 20	20 Mbps

This account will be active for the life of the project. The e-mail name for the account shall be the DDC Field Office/project Id (e.g. FLD K HWK666 McGuinness@earthlink.com).

- b) One (1) 600 DPI HP Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper (Legal Size)
 - c) All necessary cabling for equipment specified herein.
 - d) Storage Boxes for Blank CD's
 - e) Printer Table
 - f) UPS/Surge Suppressor combo
- 5) All computers required for use in the Engineer's Field Office shall be delivered, installed, and setup in the Field Office by the Contractor.
 - 6) All Computer Hardware shall come with a three (3) year warranty for on-site repair or replacement. Additionally, and notwithstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one (1) business day.
 - 7) An adequate supply of blank CDs/DVDs, and paper and toner cartridges for the printer shall be provided by the Contractor, and shall be replenished by the Contractor as required by the Resident Engineer.
 - 8) It is the Contractor's responsibility to ensure that electrical service and phone connections are also available at all times; that is, the Field Office Computer(s) is to be powered and turned on twenty-four (24) hours each day.
 - 9) Broadband connectivity is preferred at each field office location. Please take into consideration that an extra phone line dedicated to the modem must be ordered as part of the contract unless Internet broadband connectivity, via Cable or DSL, is available at the planned field office location. Any questions regarding this policy should be directed to the Assistant Commissioner of Information Technology Services at 718-391-1761.
 - 10) Ownership: The equipment specified above shall, unless otherwise directed by the Commissioner, be the sole property of the City of New York upon delivery to the DDC Field Office. The Contractor shall prepare and maintain an accurate inventory of all equipment which it purchases for the DDC Field Office. Such inventory shall be provided to the City of New York. Upon completion of the



required services, as directed by the Commissioner, the Contractor shall turn such equipment over to the City of New York.

E. HEAD PROTECTION (HARD HATS):

1. The Contractor shall provide a minimum of 10 standard protective helmets for the exclusive use of Department of Design and Construction personnel and their visitors. Helmets shall be turned over to the Resident Engineer and kept in the DDC Field Office.
2. Upon completion of the project, the helmets shall become the property of the Contractor.

3.9 MATERIAL SHEDS:

- A. Material sheds used by the Contractor for the storage of its materials shall be kept at locations which will not interfere at any time with the progress of any part of the work or with visibility of traffic control devices.
- B. Store combustible materials apart from the facility.

3.10 TEMPORARY ENCLOSURES:

- A. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
- B. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

3.11 TEMPORARY PARTITIONS:

- A. Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied tenant areas from fumes and noise.
 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
 2. Construct dustproof partitions with 2 layers of 3-mil (0.07-mm) polyethylene sheet on each side. Cover floor with 2 layers of 3-mil (0.07-mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1219 mm) between doors. Maintain water-dampened foot mats in vestibule.
 3. Insulate partitions to provide noise protection to occupied areas.
 4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
 5. Protect air-handling equipment.
 6. Weather strip openings.
 7. Provide walk-off mats at each entrance through temporary partition.

3.12 TEMPORARY FIRE PROTECTION:

- A. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
- B. Prohibit smoking in all areas.
- C. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.



- D. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
- E. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13

3.13 WORK FENCE ENCLOSURE:

- A. The Contractor shall furnish, erect and maintain a wood construction or chain-link fence to the extent shown on the drawings or required by the work enclosing the entire project on all sides. All materials used shall be new. Any permit required for the installation and use of said fence and costs shall be borne by the Contractor.
- B. WOOD FENCE shall be 7'-0" high with framing construction of yellow pine, using 4" x 4" approved preservative-treated posts on not more than 6'-0" centers, with three (3) rails of at least 2" x 4" size to which shall be secured minimum 1/2 inch thick exterior grade plywood. Posts shall be firmly fixed in the ground at least 30" and thoroughly braced. Top edge of fence shall be trimmed with a rabbeted edge mould. Provide on the street traffic sides of fence, observation openings as directed.
 - 1. GATES - Provide an adequate number of double gates, complete with hardware, located as approved by the Resident Engineer. Double gates shall have a total clear opening of 14'-0" with two (2) 7'-0" hinged swinging sections. Hanging posts shall be 6" x 6" and shall extend high enough to receive and be provided with tension or sag rods for the swinging sections.
 - 2. PAINTING - The fence and gates shall be entirely painted on the street and public sides with one (1) coat of exterior primer and one (1) top coat of exterior grade acrylic-latex emulsion paint. Black stenciled signs reading "POST NO BILLS" shall be painted on fence with three (3) inch high letters on 25 foot spacing for the entire length of fence on street traffic sides. Signs shall be stenciled five (5) feet above the sidewalk.
- C. CHAIN-LINK FENCING shall be minimum 2-inch thick, galvanized steel, chain-link fabric fencing; 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Fence shall be accurately aligned and plumb, adequately braced and complete with gates, locks and hardware as required. Under no condition shall fencing be attached or anchored to existing construction or trees.
- D.
 - 1. It shall be the obligation of the Contractor to remove all posters, advertising signs, and markings, etc., immediately.
 - 2. Should the fencing be required to be relocated during the course of the Contract, it shall be done by the Contractor at no additional cost to the City.
 - 3. Where sidewalks are used for "drive over" purposes for Contractor vehicles, a suitable wood mat or pad shall be provided for protection of sidewalks and curbs.
 - 4. Where required, make provision for fire hydrants, lampposts, etc.
 - 5. REMOVAL - When directed by the Resident Engineer, the fence shall be removed.

3.14 RODENT AND INSECT CONTROL:

- A. DESCRIPTION: The Contractor shall provide all labor, materials, plant and equipment, and incidentals required to survey and monitor rodent activity and to control any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. Special attention should be paid to the following conditions or areas:



- 1 Wet areas within the project area, including all temporary structures.
- 2 All exterior and interior temporary toilet structures within the project area.
- 3 All Field Offices and shanties within the project area of all subcontractors and DDC.
- 4 Wherever there is evidence of food waste and/or discarded food or drink containers, in quantity, that would cause breeding of rodents or the insects herein specified.
- 5 Any other portion of the premises requiring such special attention.

B. MATERIALS:

- 1 All materials shall be approved by the New York State Department of Environmental Conservation and comply with the New York City Health Code, OSHA and the laws, ordinances and regulations of State and Federal agencies pertaining to such chemical and/or materials.

C. PERSONNEL:

- 1 All pest control personnel must be supervised by an exterminator licensed in categories 7A and 8.

D. METHODS:

1. Application and dosage of all materials shall be done in strict compliance with the manufacturer's recommendations.
2. Any unsanitary conditions, such as uncollected garbage or debris, resulting from all Contractor's activities, which will provide food and shelter to the resident rodent population shall be corrected by the Contractor immediately after notification of such condition by the Resident Engineer.

E. RODENT CONTROL WORK:

- 1 In wetlands, woodlands and areas adjacent to a stream, special precautions must be taken to protect water quality and to ensure the safety of other wildlife. To prevent poisoned bait from entering streams, no poisoned bait shall be used in areas within seventy-five (75) feet of all stream banks. Live traps must be used in these seventy-five (75) foot buffer zone areas and within wetland and woodland areas.
- 2 In areas outside the seventy-five (75) foot zone of protection adjacent to streams, and in areas outside wetlands and woodlands, tamper proof bait stations with poisoned bait shall be placed during the period of construction and any consumed or decomposed bait shall be replenished as directed.
- 3 At least one month prior to initiation of the construction work, and periodically thereafter, live traps and/or rodenticide bait in tamper proof bait stations, as directed above, shall be placed at locations that are inaccessible to pets, human beings, children and other non-target species, particularly wildlife (for example-birds) in the project area.
- 4 The Contractor shall be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper proof bait stations. The Contractor shall also be responsible for posting and maintaining signs announcing the baiting of each particular location.
The Contractor shall be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the project area.
- 5 It is anticipated that public complaints will be addressed to the Commissioner. The Contractor, where directed by the Commissioner, shall take appropriate actions, like baiting, trapping, proofing, etc., to remedy the source of complaint within the next six (6) hours of normal working time which is defined herein for the purposes of this section as 7 A.M. to 6 P.M. on Mondays through Saturdays.
- 6 Emergency service during the regular workday hours (Monday through Friday) shall be rendered within 24 hours, if requested by the Commissioner, at no additional cost to the City.



F. EDUCATION & NOTICES:

- 1 The Contractor shall post notices on all Construction Bulletin Boards advising workers, employees, and residents to call the Engineer's Field Office to report any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. The Contractor shall provide and distribute literature pertaining to IPM techniques of rodent control to affected businesses and superintendents of nearby residential buildings to ensure their participation in maintaining their establishments free of unsanitary conditions, harborage removal and rodent proofing.
- 2 Prior to application of any chemicals, the Contractor shall furnish to the Commissioner copies or sample labels for each pesticide, antidote information, and Material Data Safety Sheets (MSDS) for each chemical used.

G. RECORDS

1. The Contractor shall keep a record of all rodent and waterbug infestation surveys conducted by him/her and make available, upon request, to the Commissioner. The findings of each survey shall include, but not be limited to, recommended Integrated Pest Management (IPM) techniques, like baiting, trapping, proofing, etc., proposed for rodent and waterbug pest control.
2. The Contractor shall maintain records of all locations baited along with the type and quantity of rodenticide and insecticide bait used.

3.15 PLANT PEST CONTROL REQUIREMENTS and TREE PROTECTION REQUIREMENTS:

A. Plant Pest Control Requirements: The Contractor and its subcontractors, including the Certified Arborist described below, shall comply with all Federal and New York State laws and regulations concerning Asian Longhorned Beetle (ALB) management, including protocols for ALB eradication and containment promulgated by the New York State Department of Agriculture and Markets (NYSDAM). The Contractor is referred to: (1) Part 139 of Title 1 NYCRR, Agriculture and Markets Law, Sections 18, 164 and 167, as amended, and (2) State Administrative Procedure Act, Section 202, as amended.

1. All tree work performed within the quarantine areas must be performed by New York State Department of Agriculture and Markets (NYSDAM) certified entities. Transportation of all host material, living, dead, cut or fallen, inclusive of nursery stock, logs, green lumber, stumps, roots, branches and debris of a half inch or more in diameter from the quarantine areas is prohibited unless the Contractor or its sub-contractor performing tree work has entered into a compliance agreement with NYSDAM. The terms of said compliance agreement shall be strictly complied with. Any host material so removed shall be delivered to a facility approved by NYSDAM. For the purpose of this contract host material shall be ALL species of trees.
2. Any host material that is infested with the Asian Longhorned Beetle must be immediately reported to NYSDAM for inspection and subsequent removal by either State or City contracts, at no cost to the Contractor.
3. Prior to commencement of tree work, the Contractor shall submit to the Commissioner a copy of a valid Asian Longhorned Beetle compliance agreement entered into with NYSDAM and the Contractor or its sub-contractor performing tree work. If any host material is transported from the quarantine area the Contractor shall immediately provide the Commissioner with a copy of the New York State 'Statement of Origin and Disposition' and a copy of the receipt issued by the NYSDAM approved facility to which the host materials are transported.
4. Quarantine areas, for the purpose of this contract shall be defined as all five boroughs of the City of New York. In addition, prior to the start of any tree work, the Contractor shall contact the



NYC Department of Parks & Recreation's Director of Landscape Management at (718) 699-6724, to determine the limits of any additional quarantine areas that may be in effect at the time when tree work is to be performed. The quarantine area may be expanded by Federal and State authorities at any time and the Contractor is required to abide by any revisions to the quarantine legislation while working on this contract. For further information please contact: NYSDAM (631) 288-1751.

- B. Tree Protection Requirements: The Contractor shall retain a Certified Arborist, as defined by New York City Department of Parks and Recreation (NYCDPR) regulations, to provide the services described below.
1. Surveys and Reports: The Certified Arborist shall, at the times indicated below, conduct a survey and prepare a plant material assessment report which includes: (1) identification, by species and pertinent measurements, of all plant material located on the project site, or in proximity to the project site, as described below, including all trees, significant shrubs and/or planting masses; (2) identification and plan for the containment of plant pests and pathogens, including the ALB, as described in paragraph A above; (3) evaluation of the general health and condition of any infected plant material.
 2. Frequency of Reports: The Certified Arborist shall conduct a survey and provide a plant material assessment report at two (2) points in time: (1) prior to the commencement of construction work; and (2) at the time of substantial completion. In addition, for projects exceeding 24 months in duration, the Certified Arborist shall conduct a survey and prepare a report at the midpoint of construction. Copies of each plant material assessment report shall be submitted to the Resident Engineer within two (2) weeks of the survey.
 3. Proximity to Project Site: Off-site trees, significant shrubs and/or planting masses shall be considered to be located in proximity to the project site under the circumstances described below.
 - a. The tree trunk, significant shrub, or primary cluster of stems in a planting mass is within 50 (fifty) feet of the project's Contract Limit Lines (CLLs) or Property Lines (PLs).
 - b. Any part of the tree or shrub stands within 50 (fifty) feet of: (a) a path for site access for vehicles and/or construction equipment; or (b) scaffolding to be erected for construction activity, including façade remediation projects.
 - c. The Certified Arborist determines that the critical root zone (CRZ) of an off-site tree, significant shrub, or primary cluster of stems in a planting mass extends into the project site, whether or not that plant material is located within the 50-foot inclusionary perimeter as outlined above.
 4. Tree Protection Plan: The Certified Arborist shall prepare, and the Contractor shall implement, a Tree Protection Plan, for all trees that may be affected by any construction work, excavation or demolition activities, including without limitation, (1) on-site trees, (2) street trees, as defined below, (3) trees under NYCDPR jurisdiction as determined by the Department of Transportation, and (4) all trees that are located in proximity to the project site, as defined above. The Tree Protection Plan shall comply with the NYC DPR rules, regulations and specifications. The Contractor is referred to Chapter 5 of Title 56 of the Official Compilation of the Rules of the City of New York. Copies of the Tree Protection Plan shall be submitted to the Resident Engineer prior to the commencement of construction. Implementation of the Tree Protection Plan for street trees and trees under NYCDPR jurisdiction shall be in addition to any tree protection requirements specified or required for the project site. For the purpose of this article, a "street tree" means the following: (1) a tree that stands in a sidewalk, whether paved or unpaved, between the curb lines or lateral lines of a roadway and the adjacent property lines



of the project site, or (2) a tree that stands in a sidewalk and is located within 50 feet of the intersection of the project's site's property line with the street frontage property line.

- C. No Separate Payment. No separate payment shall be made for compliance with Plant Pest Control Requirements or Tree Protection Requirements. The cost of compliance with Plant Pest Control Requirements and Tree Protection Requirements shall be deemed included in the Contractor's bid for the Project.

3.16 PROJECT IDENTIFICATION SIGNAGE:

- A. The Contractor shall provide, install and maintain Project identification and other signs where indicated to inform public and individuals seeking entrance to the Project.
- B. In order to properly convey notice to persons entering upon a City construction site, the Contractor shall furnish and install a sign at the entrance (gates) as follows:

NO TRESPASSING

AUTHORIZED PERSONNEL ONLY

- C. If no construction fence exists at the site, this notice shall be conveyed by incorporating the above language into safety materials (barriers, tape, and signs).
- D. Provide temporary, directional signs for construction personnel and visitors.
- E. Maintain and touch up signs so that they are legible at all times.

3.17 PROJECT CONSTRUCTION SIGN AND RENDERING:

- A. PROJECT SIGN:
- 1 Responsibility: The Contractor shall produce and install one (1) project sign which shall be posted and maintained upon the site of the project at a place and in a position directed by the Commissioner. The Contractor shall protect the sign from damage during the continuance of work under the Contract and shall do all patching of lettering, painting and bracing thereof necessary to maintain the sign in first class condition and in proper position. Prior to fabrication, the Contractor shall submit an 8-1/2" x 11" color match print proof from the sign manufacturer of the completed sign for approval by the Commissioner.
 - 2 Sign Quality: The Contractor shall provide all materials required for the production of the sign as specified herein. Workmanship shall be of the best quality, free from defects and shall be produced in a timely manner.
 - 3 Schedule: Upon project mobilization, the Contractor shall commence production and installation of the sign.
 - 4 Removal: At the completion of all work under the Contract, the Contractor shall remove and dispose of the project sign away from the site.
 - 5 Sign construction:
 - a. Frame: The frame shall be from quality dressed 2"x2" pine, fire retardant, pressure treated lumber, that surrounds the inside back edge of the sign. The sign shall have one (1) intermediate vertical and two (2) diagonal supports, glued and screwed for rigidity. Frame shall be painted white with two (2) coats of exterior enamel paint, prior to mounting of sign panel.
 - b. Edging: U-shaped, 22 gauge aluminum edging, with a white enameled finish to match sign



- background, shall run around entire edging of sign panel and frame. Corners shall be mitered for a tight fit. Channel dimensions shall be 1" inch (overlap to sign panel face) x 1 3/4" (or as required across frame depth) x 1" (back overlap).
- c. Sign Panel: 4' x 8' panel shall be constructed in one (1) piece of 14 gauge (.0785") 6061-T6 aluminum. This panel shall be pre-finished both sides with a glossy white baked-on enamel finish and be flush with edge of 2" x 2" wood frame. Samples must be submitted for approval.
 - d. Fastening: Fasten sign panel to wood frame using cadmium plated no. 8 sheet metal screws at 1/2" below edge of panel and 8" on center. The U-shaped aluminum channel shall be applied over the wood frame edge and fastened with cadmium plated no. 8 sheet metal screws at 12" on center around the entire perimeter.
- 6 Sign Graphics:
- a. A digital file of the project sign will be provided to the Contractor by the Commissioner's representative for printing. The Commissioner's representative shall insert the project name and names and titles of personnel (3 or more) and any other required information associated with the project. All signs may include a second panel for a project rendering as described in Sub-Section 3.17.B herein.
 - b. The digital file shall be reproduced at the Sign Panel size of 4' x 8' on 3M High Performance Vinyl or approved equal. The 3M High Performance Vinyl or equivalent shall be guaranteed for nine (9) years. Guarantee must cover fading, peeling, chipping or cracking. The sign manufacturer is required to maintain all specified Pantone Matching System (PMS) type and other composition elements represented in the digital file of the project sign.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.17.B

B. PROJECT RENDERING:

1. Responsibility: In addition to the Project Sign, the Contractor shall furnish and install one (1) sign showing a rendering of the project. A digital file of the project rendering will be provided to the Contractor by the Commissioner's representative. From an approved image file provided by DDC, the Project Rendering is to be sized, printed, and mounted in an identical manner as described in Sub-Section 3.17.A above for the Project Sign. A color match print proof from the sign manufacturer of the Rendering Sign printed from the supplied file is to be submitted to DDC for approval before fabrication. The Rendering Sign is to be posted at the same height as the Project Sign. Where possible, the Rendering Sign shall be mounted with a perfect match of the short sides of the rectangle so that the Rendering Sign and the Project Sign together will create one long rectangle.
2. Removal: At the completion of all work under the Contract, the Contractor shall remove and dispose of the project rendering away from the site.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.18

3.18 SECURITY GUARDS/FIRE GUARDS ON SITE:

A. SECURITY GUARDS (WATCHMEN):

1. The Contractor shall provide competent Security Guard Service on the site, beginning on the date on which the Contractor commences actual construction work, or on such earlier date on which there is activity at the site related to the work, including without limitation, delivery of



- materials or construction set-up. The Contractor shall continue to provide such Security Guard Service until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. Throughout the specified time period, there shall be no less than one (1) Security Guard on duty every day, including Saturdays, Sunday and Holidays, 24 hours a day, except between the hours of 8:00 A.M. and 4:00 P.M. on any day which is a regular working day for a majority of the trade subcontractors. This exception during the working day shall not apply after the finishing painting of the plaster work is commenced; thereafter, not less than one (1) Security Guard shall be on duty continuously, 24 hours a day.
2. Every Security Guard shall be required to hold a "Certificate of Fitness" issued by the Fire Department. Every Security Guard shall, during his/her tour of duty, perform the duties of Fire Guard in addition to his/her security obligations.
 3. Should the Commissioner find that any Security Guard is unsatisfactory; such guard shall be replaced by the Contractor upon the written demand of the Commissioner.
 4. Each Security Guard furnished by the Contractor shall be instructed by the Contractor to include in his/her duties the entire construction site including the Field Office, temporary structures, and equipment, materials, etc.
 5. Should the Contractor or any other subcontractor consider the security requirements outlined above inadequate, the Contractor shall provide such additional security as it thinks necessary, after obtaining the written consent of the Commissioner. The additional cost of such approved increased protection will be paid by the Contractor.
 6. Nothing contained in this Sub-Section shall diminish in any way the responsibility of the Contractor and each subcontractor for its own work, materials, tools, equipment, nor for any of the other risks and obligations outlined hereinbefore in this Article.
- B. COSTS - The Contractor shall employ Security Guards/Fire Guards throughout the specified time period, except as otherwise modified by the detailed Specifications and as approved by the Commissioner, for the purpose of safeguarding and protecting the site. All costs for Security Guards/Fire Guards shall be borne by the Contractor.
- C. RESPONSIBILITY - The Contractor and its subcontractors will be responsible for safeguarding and protecting their own work, materials, tools and equipment.

3.19 SAFETY:

- A. The Contractor, in compliance with requirements of Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES, shall provide and maintain all necessary temporary closures, guard rails, and barricades to adequately protect all workers and the public from possible injury. Any removal of these items, during the progress of the work, shall be replaced by the Contractor at no additional cost to the City.

END OF SECTION 01 50 00



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
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No Text

TEMPORARY FACILITIES, SERVICES AND CONTROLS
01 50 00 -28



SECTION 01 54 11
TEMPORARY ELEVATORS AND HOISTS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This section includes the following:
1. Temporary Use, Operation and Maintenance of Elevators during Construction
 - a. For New buildings up to 15 Stories
 - b. For New buildings over 15 Stories
 - c. For Existing Buildings
 2. Temporary Construction Hoists and Hoist ways (For Material and Personnel)

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 42 00 REFERENCES
- C. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS
- D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING
- E. Section 01 77 00 CLOSE OUT PROCEDURES

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.1

3.1 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDINGS UP TO AND INCLUDING 15 STORIES:

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, one (1) selected main elevator for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevator in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevator and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.
- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.



- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevator, including without limitation: (1) installing and operating the temporary elevator, (2) maintaining the temporary elevator in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevator, (4) replacing the temporary elevator or any equipment or parts utilized in connection therewith, if required, due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevator, (6) providing all electric power required to operate the temporary elevator, (7) providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevator, and (8) providing all labor for the operation and maintenance of the temporary elevator, including on an overtime basis if necessary. The total Contract Price shall include all costs in connection with the temporary elevator, including without limitation, the costs specified herein.
- D. **COMMENCEMENT OF SERVICE:** The Contractor shall begin to provide temporary elevator service using the selected main passenger elevator no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or a temporary enclosure meeting the requirements of the law.
 2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks and any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room roof slab or that portion of its surrounding the elevator has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the machine room to the low voltage transformers and car light outlets in the center of shaft way and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- F. **REMOVAL:** When elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment and promptly proceed with the installation of the permanent equipment as required under the Contract.
- G. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection deems it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables and new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.



- H. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators shall be thoroughly cleaned. Where lubricated rails are used they shall be washed down. If roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- I. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- J. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this section beginning with the 41st working day after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2

3.2 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDING OVER 15 STORIES:

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, two (2) selected main elevators for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevators in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevators and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use. The two (2) elevators shall not be operated simultaneously.
- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevators and all equipment and/or parts utilized in connection therewith.
- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevators, including without limitation: (1) installing and operating the temporary elevators, (2) maintaining the temporary elevators in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevators, (4) replacing the temporary elevators or any equipment or parts utilized in connection therewith, if required due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevators, (6) providing all electric power required to operate the temporary elevators, (7) providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevators, and (8) providing all labor for the operation and maintenance of the temporary elevators, including on an overtime basis if necessary. The total Contract Price shall



include all costs in connection with the temporary elevators, including without limitation, the costs specified herein.

- D. **LOW RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service using one (1) selected main passenger elevator no later than six (6) weeks (30 working days) after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. No later than one (1) week, five (5) working days, after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped the following work shall have been completed:
1. The shaft shall have been completely enclosed up to the 12th Floor by either the permanent or a temporary enclosure meeting the requirements of the law.
 2. A temporary machine room enclosure shall have been provided at the 11th Floor and shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors up to and including the 9th Floor at the shaft entrances to the elevator, solid substantial wood frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor not later than 10 calendar days after the 12th Floor slab or that portion of it surrounding the elevator, has been poured and stripped, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the temporary machine room, to the low voltage transformers and car light outlets in the center of the shaftway and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the Equipment is declared ready for such connections by the Resident Engineer.
- F. **HIGH RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service to all floors, using a selected main passenger elevator, no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed, the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or temporary enclosure, meeting the requirements of the law.
 2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed, solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- G. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room slab or that portion of it surrounding the elevator shaft has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the high rise elevator to be used for



- temporary service and shall have connected such feeders to the terminals on the motor-generator starter panels or controllers in the machine room, to the signal circuits low voltage transformers for the annunciators and car light outlets in the center of shaft way. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- H. When the high rise elevator is completed and ready for temporary operation, the low rise temporary elevator shall be shut down.
- I. **REMOVAL:** When one (1) or more elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment, and promptly proceed with the installation of the permanent equipment as required under the Contract.
- J. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection determines it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables, new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- K. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installations that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheaves spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be removed from the rails. The full cost of parts replacement cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- L. **LIMITATIONS ON USE:** The temporary elevators shall not be used during their operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- M. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this Section beginning with the 31st working day after the 12th Floor slab, or that portion of the 12th Floor slab surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR EXISTING BUILDINGS:

- A. The Contractor may use, at the Commissioner's discretion, one (1) selected elevator in the building for temporary operation by the Contractor for the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction over the work at the Project. The operation of the temporary elevator and all equipment and/or parts utilized in



connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.

- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.
- C. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the elevator for temporary operation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- D. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- E. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide elevator services described in this section beginning with 15 consecutive calendar days from Notice to Proceed. This charge will be deducted from any amount due and owing to the Contractor.

3.4 TEMPORARY HOISTS AND HOISTWAYS (FOR MATERIAL AND PERSONNEL):

- A. **RESPONSIBILITY:** The Contractor shall provide adequate numbers of material hoists for the most expeditious performance of all parts of the work including the work of all its subcontractors.
- B. **LOCATIONS:** No hoists shall be constructed at such locations as will interfere with, or affect the construction of, floor arches, or the work of subcontractors. The hoists may be located at the exterior sides of the structure or in the courtyard and extend upward adjacent to the line of window openings. The hoists shall be located a sufficient distance from the exterior walls and be so protected as to prevent any of the permanent work from being damaged, stained or marred.
- C. **ELEVATOR SHAFT:** Wherever possible, one or more of the permanent elevator shafts may be used as temporary hoist ways, providing such use complies with the requirements of the Building Code of the City of New York and has been approved by the Commissioner, and providing further it entails no interference with the progress of the work.
- D. **PROTECTION FOR INTERIOR HOISTS:** All interior material hoist ways shall be enclosed on each floor and shall be adequately protected with appropriate safety guards. In no event shall the protection be less than that required by law.

END OF SECTION 01 54 11



SECTION 01 54 23
TEMPORARY SCAFFOLDING AND PLATFORMS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. Section 01 35 26: Safety Requirements Procedures.
- C. The Contractor shall comply with the requirements of "The City of New York Department of Design and Construction Safety Requirements". This document is included in the Information for Bidders.

1.2 SUMMARY:

- A. This Section includes administrative and general procedural requirements for Temporary Scaffolding and Platforms, including:
 - 1. Conformance
 - 2. Responsibility
 - 3. Jobsite Documentation and Submittals
 - 4. Inspections
- B. This Section governs ALL scaffold used on DDC project sites including, but not limited to, Suspended Scaffold, Supported Scaffold and Sidewalk Sheds.

1.3 CONFORMANCE:

- A. Unless otherwise indicated, the Contractor is responsible for providing, erecting, installing and maintaining all temporary scaffolding and platforms which shall comply with requirements of Chapter 33 (Safeguards During Construction or Demolition) of the NYC Building Code, NYC Local Law 52 of 2005, OSHA Construction Standard 1926 Subpart L, and furnishing the items and personnel set forth in this section.

1.4 RESPONSIBILITY:

- A. Jobsite Safety Coordinator: The Contractor shall designate and employ a Jobsite Safety Coordinator, who shall be a competent person, who shall have a daily presence on the project site during scaffold use. This designee must possess and maintain a valid New York City Department of Buildings supported scaffold certificate of completion. An alternate shall also be designated, in the event that the Jobsite Safety Coordinator is absent. The Jobsite Safety Coordinator shall:
 - 1. Verify completeness of documentation and submittals (as described below).
 - 2. Verify that inspections are performed, including pull tests (see below), reports are filed and reported deficiencies are corrected.
 - 3. Monitor trades using scaffold.
 - 4. Limit access to scaffold areas that are tagged for non-use.
 - 5. Inform trades of scaffold load limitations.
 - 6. Monitor loading of decks.
 - 7. Verify that any ties that are temporarily removed are properly restored in the same shift.
 - 8. Verify that outriggers and planks that are moved are properly set up and secured.
 - 9. Verify that all scaffold decks in use have proper access/egress.
 - 10. Verify that all open sides of decks in excess of 14 inches have proper guardrails and toe-boards.



11. Notify appropriate parties, including but not limited to the Resident Engineer, site safety coordinator / monitor, site safety consultant, scaffold users, contractor and the scaffold engineer, of misuses, non-conformances, hazards and accidents.
 12. Keep a log of significant actions and events connected with the scaffolding.
- B. The Contractor shall be responsible for erecting, maintaining and dismantling the scaffolding and/or sidewalk shed in conformance with requirements of the New York City Building Code, OSHA and the Contract documents, including the specifications. The Contractor shall also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.
- C. The Contractor shall require the subcontractor responsible for erecting the scaffolding to engage a Scaffold Engineer, licensed as a professional engineer by the State of New York. The Scaffold Engineer shall be responsible to ensure the following: (1) that the installation design is in compliance with requirements of the New York City Building Code and OSHA, (2) that the design comports with the capabilities of the components and the characteristics of the site, (3) that scaffold loads on the host building, including netting, have been properly considered, and (4) that the design documents provide accurate information for erectors and users.
- D. Scaffold users are trade contractors assigned to work on the scaffold. Training certificates from a New York City Department of Buildings approved training provider are mandatory. These users have the duty to become familiar with the New York City Building Code and OSHA requirements germane to users, to obey the instructions of the Jobsite Safety Coordinator and to inform the Jobsite Safety Coordinator of known hazards, non-conformances or violations.

1.5 JOBSITE DOCUMENTATION AND SUBMITTALS:

The Contractor shall prepare, obtain and submit the following to the Resident Engineer:

- A. NYC Department of Buildings permit(s) for scaffold and sidewalk sheds (as applicable) including filing applications signed and sealed by a Professional Engineer licensed in the State of New York;
- B. Site logistics plan / site safety plan;
- C. Installation drawing(s), design and product data to be provided for all scaffold(s) and shed(s) must include, at a minimum:
 1. Plan(s);
 2. Elevation(s);
 3. Duty load designation; "standard" (150 psf live load) or "heavy duty" (300 psf live load).
 4. Details including base support, anchors and ties;
 5. Notes and specifications including load limits, number of planked levels, tie spacing, netting, and sequence of installation and removal.
 6. Anchorage into sound material.
 7. Load limits based on pull tests;
 8. Specifications for pull test(s), method, proof load and the number of trials;
 9. Elevations, levels or heights, where anchorage is made into masonry;
 10. Specifications for frames, planks, screw jacks, anchors, and any other ancillary hardware;
 11. Samples for anchors, ties and netting;
 12. Sequence of operations for erection and demolition;
 13. Location plan, heights, widths, "jumps" over doorways and driveways;
 14. Specify size, maximum span and maximum spacing of headers and stringers;
 15. Specify legs, girts, braces, nailing and connections;
 16. All sidewalk sheds shall be designed, engineered, signed and sealed by a Professional Engineer licensed in the State of New York;
 - a. Generic (not job specific) engineering drawings are satisfactory for standard sheds and arrangements.



- b. Special engineering is required for custom sheds, site-specific problems or non-standard arrangements.

1.6 INSPECTIONS:

- A. Signed inspection reports shall be issued for each inspection and pull-test below, and shall be logged and maintained on site by the Jobsite Safety Coordinator for the duration of the project.
- B. Pull testing shall be required during design, and during or post erection, where anchorage is made into masonry. The Scaffold Engineer shall specify the test method, proof load and the number of trials.
- C. Sidewalk sheds shall be inspected after initial installation, major modification, or damage and thence every three months. Inspections shall be by a Scaffold Engineer for custom sheds and by a Competent Person employed by the Contractor for standard sheds.
- D. Scaffolds shall be inspected by the Scaffold Engineer during erection, post-erection and prior to use and thence every three months. The Scaffold Engineer shall repeat inspections after major alteration/modification, damage.
- E. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling, and the condition and integrity of the sidewalk sheds after high winds, major storms and at least once per month during usage.
- F. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling at least weekly, and the condition and integrity of the scaffold after high winds, major storms and at least once per month during usage.
- G. Scaffolds and Sidewalk Sheds shall be inspected daily by the Jobsite Safety Coordinator or alternate prior to use by scaffold users. The inspection results must be recorded in the maintenance log, and be available on-site at all times.
- H. At the completion of the project, submit all inspection documents as Miscellaneous Record Documents in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS.

1.7 LADDERS AND STAIRS:

- A. The Contractor shall provide and maintain ladders or temporary stairs extending from the street to the first story, and to and from every floor and roof level of the project.

1.8 ACCESS AND EXITS:

- A. The ladders or temporary stairs shall be of acceptable size, number and location, so that proper and convenient access may be had by those required to proceed to and from all parts of the project.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 54 23



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013
Revised - January 15, 2015

No Text

TEMPORARY SCAFFOLDING AND PLATFORMS
01 54 23 - 4



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013
Revised - January 15, 2015

**SECTION 01 73 00
EXECUTION**

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes general procedural requirements governing execution of the Work including without limitation the following:

1. Delivery of Materials
2. Contractor's Superintendent
3. Surveys
4. Borings
5. Examination
6. Environmental Assessment
7. Preparation
8. Deferred Construction
9. Installation
10. Permits
11. Transportation
12. Sleeves and Hangers
13. Sleeve and Hanger Drawings
14. Cutting and Patching
15. Location of Partitions
16. Furniture and Equipment
17. Removal of Rubbish and Surplus Material
18. Cleaning
19. Security And Protection of Work Site
20. Maintenance of Site and Adjoining Property
21. Maintenance of Project Site
22. Safety Precautions for Control Circuits
23. Obstructions in Drainage Lines

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| C. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| D. | Section 01 74 19 | CONSTRUCTION WASTE MANAGEMENT & DISPOSAL |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |

EXECUTION
01 73 00 - 1



1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 QUALITY ASSURANCE:

- A. Land Surveyor Qualifications: A professional land surveyor who is licensed in the State of New York and who is experienced in providing land-surveying services of the kind indicated.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 DELIVERY OF MATERIALS:

- A. Material Orders: The Contractor shall furnish to the Commissioner a copy of each material order, indicating date of order and quantity of material, and shall also notify the Commissioner when materials have been delivered to the site and in what quantities.
- B. Ample Quantities: The Contractor shall deliver materials in ample quantities to insure the most prompt and uninterrupted progress of the work so as to complete the work within the Contract time.
- C. Containers: The manufacturer's containers shall be delivered with unbroken seals and shall bear proper labels.
- D. Deliveries: The Contractor shall coordinate deliveries in order to avoid delaying or impeding the progress of the work.
- E. Handling: The Contractor shall provide equipment and personnel to handle products by methods to prevent soiling or damage.
 - 1. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
 - 2. Promptly return damaged shipments or incorrect orders to manufacturer.
 - 3. For materials or equipment to be reused or salvaged, use special care in removal, storage and reinstallation to insure proper function in completed work.
- F. Storage: Store products in accordance with provisions of Article 3.1, and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.
- G. Stacking: All materials shall be properly stacked in convenient places adjacent to the site, or where directed, and protected in a satisfactory manner. Stacked materials shall be so arranged as to not interfere with visibility of traffic control devices.
- H. Overloading: If authority is given to store materials in any part of the project area, they shall be so stored as to cause no overloading.



- I. No Interference: If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the work or interfering with the work to be done by any trade subcontractor, the Contractor shall remove and restack such materials at no additional cost to the City.

3.2 CONTRACTOR'S CONSTRUCTION SUPERINTENDENT:

- A. Contractor's Construction Superintendent: The Contractor shall devote its time and personal attention to the work and shall employ and retain at the project site, from the commencement until the entire completion of the work, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent shall be registered with the New York City Department of Buildings in compliance with the Construction Superintendent Rule of the City of New York and shall be competent and capable of maintaining proper supervision and care of the work and shall be acceptable to the Commissioner. The Construction Superintendent shall, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any subcontractor, shall see that the instructions of the Commissioner are carried out.
- B. Replacement: The Contractor's Construction Superintendent on the job shall not be changed or removed without the consent of the Commissioner.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 SURVEYS:

- A. Line and Grade: The City will establish a baseline and bench mark near the site of the work for use of the Contractor in connection with the performance of the work.
- B. Responsibility: The Contractor shall establish all other lines and elevations required for its work and shall be solely responsible for the accuracy thereof.
- C. Safeguard All Points: The Contractor shall safeguard all points, stakes, grade marks and bench marks made or established by the Contractor on the work, shall re-establish same if disturbed and bear the entire expense of rectifying the work improperly installed due to not maintaining, not protecting or removing without authorization such established points, stakes, or marks.
- D. City Monuments and Markers: No work shall be performed near City monuments or marks so as to disturb them until the said monuments or marks have been referenced or reset or otherwise disposed of by the relevant Agency or party who installed them.
- E. Foundations: The Contractor shall furnish certification from a licensed Surveyor that all portions of the foundation work are located in accordance with the Contract Drawings and at the elevations required thereby. This certification shall show the actual locations and the actual elevations of all the work in relation to the locations and elevations shown on the Contract Drawings, including but not restricted to the following:
 1. The locations and elevations of all piles, if any.
 2. Elevations of tops of all spread footings, tops of pile caps, and tops of all foundation walls, elevator pit walls and ramp walls.
 3. Location of all footing centers and pier centers including those for exterior wall columns.
 4. Location of all foundation walls including wall columns, elevator pit walls and ramp walls.
- F. Wall Lines: After the first courses of masonry or stone have been laid, the Contractor shall establish the permanent lines of exterior walls. The Contractor shall furnish promptly, certification from a licensed Surveyor, in the form of signed original drawings showing the exact location of such wall lines, of all portions of all structures. Except at its own risk, the Contractor shall not proceed further with the erection of walls until the Surveyor's certification has been submitted and verified for correct location of wall lines.



- G. **Surveyor:** The Surveyor selected for any of the purposes mentioned in Paragraph E and Paragraph F above, and Paragraph I below, shall be a land Surveyor licensed in the State of New York and shall be subject to the approval of the Commissioner. The Surveyor shall not be a regular employee of the Contractor, nor shall the Surveyor have any interest in the Contract. The Surveyor shall not be employed by the Contractor in laying out any work, it being intended that the Surveyor's certification shall represent an independent and disinterested verification of such layout. The Surveyor shall report to the Department of Design and Construction's Resident Engineer each time upon arrival to and departure from the site and review with the Resident Engineer the data required for the project.
- H. **Final Certification:** Final certification shall be submitted upon completion of the work or upon completion of any subdivision of the work as directed by the Commissioner. Any exceptions or deviations from the drawings shall be noted on the final certificate and there shall be included any maps, plates, notes, pertinent documents and data necessary, in the opinion of the Commissioner, to constitute a full and complete report.
- I. **Final Survey:** The Contractor shall submit to DDC for submission to the Department of Buildings a final Survey by the licensed Surveyor showing the location of the new Structure, before completion of the Structure. This Survey shall show the location of the first tier of beams or of the first floor; the finish grades of the open spaces on the plot; the established curb level and the location of all other Structures on the plan, together with the location and boundaries of the lot or plot upon which the Structure is constructed, curb cuts, all yard dimensions, etc.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4

3.4 BORINGS:

- A. The work of this article shall be the responsibility of the Contractor unless otherwise indicated.
- B. **Reference Drawings:** The Boring Drawings as listed on the title sheet are for information to the bidder and are to be used under the conditions as follows:
1. **Boring Logs:** shown on the Boring Drawings, record information obtained under engineering supervision in the course of exploration carried out by or under the direction of forces of the Department of Design and Construction at the site.
 2. **Soils and Rock Samples:** All inferences are drawn from the indications observed as made by engineering and scientific personnel. All such inferences and all records of the work including soil samples and rock cores, if any, are available to bidders for inspection.
 3. **Certification of Samples:** The City certifies that the work was carried out as stated, and that the soil samples and rock cores, if any were referred to, were actually taken from the site at the times, places and in the manner indicated. The samples are available for inspection in the Department of Design and Construction Subsurface Exploration Section.
 4. **Bidder's Responsibility:** The bidder, however, is responsible for any conclusions to be drawn from the work. If the bidder accepts those of the City, it must do so at its own risk. If the bidder prefers not to assume such risk, the bidder is under the obligation of employing its own experts to analyze the available information, and must be responsible for any consequences of acting on their conclusions.
 5. **Continuity Not Guarantee:** The City does not guarantee continuity of conditions shown at actual boring locations over the entire site. Where possible, borings are located to avoid all obstructions and previous construction which can be found by inspection of the surface and the bidder is required to estimate the influence of such features from its own inspection of the site.



3.5 EXAMINATION:

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground utilities and other construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with the subcontractor responsible for installation or application present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.6 ENVIRONMENTAL ASSESSMENTS:

- A. City Responsibilities: An Environmental Assessment and survey is performed by the NYC DDC and its findings are included in the Contract Documents. In accordance with the NYC Administrative Code Title 15 Chapter 1 an asbestos survey is required to be performed by an Asbestos Investigator certified by the NYC Department of Environmental Protection (DEP) to identify the presence of asbestos containing material (ACM) prior to any alteration, renovation or demolition activity. The findings of such survey are required for the submission of approvals and permits issued by the NYC Department of Buildings (DOB). When the findings indicate that asbestos containing material is present and will be disturbed during the alteration, renovation or demolition activity then abatement design specifications will be incorporated into the contract documents. The Contractor shall comply with all federal, state and local asbestos regulations affecting the work for this Contract.
- B. Contractor Responsibility: The Contractor shall comply with all federal, state and local environmental regulations, including without limitation USEPA and OSHA regulations which require the Contractor to assess if lead based paint will be disturbed during the work in order to protect his/her workers and the building occupants from migration of lead dust into the air. The Contractor shall comply with all federal, state and local environmental waste disposal regulation which may be required during the work. The Contractor is required to hire licensed abatement and disposal companies for the requisite work.

3.7 PREPARATION:

- A. Field Measurements: The Contractor shall verify all dimensions and conditions on the job so that all work will properly join the existing work.
- B. The Contractor, before commencing work, shall examine all adjoining work on which its work is in any way dependent on good workmanship in accordance to the intent of the Specifications and the Contract



Drawings. The Contractor shall report to the Commissioner any condition that will prevent it from performing work that conforms to the required standard.

- C. Existing Utility Information: Furnish information to the Commissioner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.8 DEFERRED CONSTRUCTION:

- A. Where necessity for deferred construction is certified by the Commissioner, in order to permit the installation of any item or items of equipment required to be furnished and installed concurrent with the time allowed for doing and completing the work of the Contract, the Contractor shall defer construction work limited to adequate areas as approved by the Commissioner.
- B. The Contractor shall confer with the affected trade subcontractors and ascertain arrangements, time and facilities necessary to be made by the Contractor in order to execute the provisions specified herein.

3.9 INSTALLATION:

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work and work of trade subcontractors to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Design Consultant.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.



- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.10 PERMITS:

- A. The Contractor shall comply with all local, state and federal laws, rules and regulations affecting the Work of this Project, including, without limitation, (1) obtaining all necessary permits for the performance of the Work prior to commencement thereof, and (2) complying with all requirements for the disposal of demolition and/or construction debris, waste, etc., including disposal in City landfills. The Contractor shall be responsible for all costs in connection with such regulatory compliance, unless otherwise specified in the Contract.

3.11 TRANSPORTATION:

- A. Availability: It shall be the duty of the Contractor to determine the availability of transportation facilities and dockage for the use of its employees, equipment and material and the conditions under which such use will be permitted.
- B. Costs: If transportation facilities and dockage are available and are permitted to be used by the governmental agency having jurisdiction, the Contractor shall pay all necessary costs and expenses, and abide by all rules and regulations promulgated in connection therewith.
- C. Vehicles: With respect to the use of vehicles on highways and bridges, the Contractor's attention is directed to the limitations set forth in the Rules of the City of New York, Title 34, Chapter 4, Section 4-15.
- D. Continued Use: It is understood that the Commissioner makes no warranty as to the continued use by the Contractor of such facilities.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.12

3.12 SLEEVES AND HANGERS:

- A. Coordinate with Progress Schedule: The Contractor shall promptly furnish and install conduits, outlets, piping sleeves, boxes, inserts and all other materials and equipment that is to be built into the work in conformity with the requirements of the project.
- B. Cooperation of Subcontractors: All subcontractors shall fully cooperate with each other in connection with the performance of the above work as "cutting in" new work is neither contemplated nor will it be tolerated.
- C. Timeliness: In the event that timely delivery of sleeves and other materials cannot be made, and to avoid delay, the Contractor may arrange to have boxes or other forms set at the locations where the piping or other material is to pass through or into the slabs, walls or other work. Upon the subsequent installation of the sleeves or other material, the Contractor shall fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in shall be borne by the Contractor.
- D. Inserts: The Contractor is to install strip inserts four (4) foot on center and perpendicular to beams in ceiling slabs of boiler, machine and mechanical equipment rooms. Inserts are to be installed for strippable concrete slabs only.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13

3.13 SLEEVE AND PENETRATION DRAWINGS:

- A. As soon as practicable after the commencement of work and when the order in which concrete for the first slabs, walls, etc. to be poured is determined, the Contractor shall submit to the DDC a sketch indicating the location and size of all penetrations for sleeves, ducts, etc. which will be required to accommodate the mechanical trades, in order to determine if such penetrations will materially weaken the project's structure. The sketch shall be stamped and returned if approved and/or comments will be transmitted. The Contractor shall continue to submit sketches as the pouring schedule and the concrete work progresses and, until approvals for the penetration sketches have been given. The Contractor shall not predicate its layout work on unapproved sketches.

3.14 CUTTING AND PATCHING:

- A. Responsibility: The Contractor shall do all cutting, patching and restoration required by its work, unless otherwise particularly specified in the Specifications.
- B. Restore Work: The Contractor shall restore any work damaged during the performance of the work.
- C. Competent Workers: All restoration work shall be done to the satisfaction of the Commissioner by competent workers skilled in the trade required by such restoration. If, in the judgment of the Commissioner, workers engaged in restoration work are incompetent, they shall be replaced immediately by competent workers.
- D. Structural Elements: Do not cut and patch structural elements without the prior approval, in writing, of the Resident Engineer.
- E. Operational Elements: Do not cut and patch operating elements and related components.
- F. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Commissioner's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- G. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.
- H. Removals: The Contractor must remove from the premises all demolished materials of every nature or description resulting from cutting, patching and restoration work, in accordance with the requirements hereinafter stipulated under Sub-Section 3.17 herein and as further required in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.15

3.15 LOCATION OF PARTITIONS:

- A. Within three (3) weeks after the concrete slabs have been poured on each floor level, the Contractor shall immediately locate accurately all of the partitions, including the door openings, on the floor slabs in a manner approved by the Resident Engineer.



3.16 FURNITURE AND EQUIPMENT:

- A. Responsibility: The Contractor is responsible for moving all loose furniture and/or equipment in all areas where the location of such furniture and/or equipment interferes with the proper performance of its work.
- B. Protection: All such furniture and/or equipment must be adequately protected with dust cloths and returned to their original locations when directed to do so by the Resident Engineer.

3.17 REMOVAL OF RUBBISH AND SURPLUS MATERIALS:

- A. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Comply with requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Rubbish: Rubbish shall not be thrown from the windows or other parts of the project. Mason's rubbish, dirt and other dust-producing material shall be wetted down periodically.
- C. Location: The Contractor shall clean Project site and work area daily and sweep up and deposit, at a location designated on each floor, all of its rubbish, debris and waste materials, as it accumulates and when directed by the Resident Engineer. Wood crating shall be broken up, neatly bundled, tied and stacked ready for removal and be deposited at a location designated on each floor.
 - 1. Comply with requirements in NYC Fire Department for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees F (27 degrees C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- D. Laborers: The Contractor shall be responsible for the removal of all rubbish, etc., from the site. The Contractor shall remove from the designated locations all piles of rubbish, debris, waste material and wood crating as they accumulate and when directed by the Resident Engineer, and shall remove them from the site. The Contractor shall employ and keep engaged for this purpose an adequate number of laborers.
- E. Surplus Materials: The Contractor shall remove from the site all surplus materials when there is no further use for same.
- F. Tools And Materials: At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly removed.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

3.18 CLEANING:

- A. The Contractor shall thoroughly clean all equipment and materials furnished and installed and shall deliver such materials and equipment undamaged in a clean and new appearing condition up to date of Final Acceptance.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.



- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration up to date of Final Acceptance.
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration up to date of Final Acceptance.

3.19 SECURITY AND PROTECTION OF WORK SITE:

- A. Provide protection of installed work, including appropriate protective coverings and maintain conditions that ensure installed Work is without damage or deterioration up to date of Final Acceptance.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.
- C. Secure and protect work and work site against damage, loss, injury, theft and/or vandalism.
- D. Maintain daily sign-in sheets of workers and visitors and make the sheets available to the Commissioner

3.20 MAINTENANCE OF SITE AND ADJOINING PROPERTY:

- A. The Contractor shall take over and maintain the Project site, after order to start work.
- B. The Contractor shall be responsible for the safety of the adjoining property, including sidewalks, paving, fences, sewers, water, gas, electric and other mains, pipes and conduits etc. until the date of Final Acceptance. The Contractor shall, at its own expense, except as otherwise specified, protect same and maintain them in at least as good a condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained and repaired to serviceable condition with materials to match existing.
- D. Provide and keep in good repair all bridging and decking necessary to maintain vehicular and pedestrian traffic.
- E. The Contractor shall also remove all snow and ice as it accumulates on the sidewalks within the Contract Limits Lines.

3.21 MAINTENANCE OF PROJECT SITE:

- A. The Contractor shall take over and maintain all project areas, after order to start work.
- B. Until the date of Final Acceptance, the Contractor shall be responsible for the safety of all project areas, including water, gas, electric and other mains and pipes and conduits and shall at the Contractor's own expense, except as otherwise specified, protect same and maintain them in at least as good condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained, and if damaged, repaired to serviceable conditions with materials to match existing.
- D. The Contractor shall keep the space for the Resident Engineer in a clean condition.

3.22 SAFETY PRECAUTIONS FOR CONTROL CIRCUITS:

- A. Control circuits, the failure of which will cause a hazard to life and property, shall comply with the New York City Dept. of Buildings, Bureau of Electrical Control requirements.

3.23 OBSTRUCTIONS IN DRAINAGE LINES:

- A. The Contractor shall be responsible for all obstructions occurring in all drainage lines, fittings and fixtures after the installations and cleaning of these drainage lines, fittings and fixtures as certified by the Resident Engineer. Roof drains shall be kept clear of any and all debris. Any stoppage shall be repaired immediately at the expense of the Contractor.

END OF SECTION 01 73 00



SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This section includes administrative and procedural requirements for the management and disposal of construction waste and includes the following requirements:
1. Waste Management Goals
 2. Waste Management Plan
 3. Progress Reports
 4. Progress Meetings
 5. Management Plan Implementation
- B. This Section includes:
1. Definitions
 2. Waste Management Performance Requirements
 3. Reference Resources
 4. Submittals
 5. Quality Assurance
 6. Waste Plan Implementation
 7. Additional Demolition and Salvage Requirements
 8. Disposal

1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- D. Section 01 73 00 EXECUTION
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONSTRUCTION RECORD DOCUMENTS
- G. Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.



- D. **Construction and Demolition Waste:** Solid wastes typically including building materials, trash debris and rubble resulting from remodeling, repair and demolition operations. Hazardous materials and land clearing waste are not included.
- E. **Diversion from Landfill:** To remove, or have removed, from the site for recycling, reuse or salvage, material that might otherwise be sent to a landfill.
- F. **Recyclable:** The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.
- G. **Recycle (recycling):** To sort, separate, process, treat or reconstitute solid waste and other discarded materials for the purpose of redirecting such materials into the manufacture of useful products. Recycling does not include burning, incinerating or thermally destroying waste.
- H. **Return:** To give back reusable items or unused products to vendors.
- I. **Reuse:** To reuse excess or discarded construction material in some manner on the Project site.
- J. **Salvage:** To remove a waste material from the Project site for resale or reuse.
- K. **Waste:** Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
- L. **Waste Management Plan:** A project-related plan for the collection, transportation and disposal of waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material becoming landfill.

1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:

- A. The City of New York has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors shall be employed.
- B. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.5 C

- C. **LEED CERTIFICATION:** The City of New York will seek LEED (Leadership in Energy and Environmental Design) certification for this Project as indicated in the Addendum to the General Conditions from the U.S. Green Building Council. The documentation required here will be used for this purpose. LEED awards points for a variety of sustainable design measures on a project, one of which is the reuse and recycling of project waste.
- D. **DIVERSION REQUIREMENTS.** A minimum of 75% of total Project demolition waste (by weight) shall be diverted from landfill. The following waste categories are likely candidates to be included in the diversion plan as applicable for this project:
 - 1. Concrete
 - 2. Bricks
 - 3. Concrete masonry units (CMU)
 - 4. Asphalt
 - 5. Metals (e.g. banding, stud trim, ceiling grid, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, brass, bronze)



6. Clean dimensional wood
 7. Carpet and pad
 8. Drywall
 9. Ceiling tiles
 10. Cardboard, paper and packaging
 11. Reuse items indicated on the Drawings and/or elsewhere in the Specification
- E. All fluorescent lamps, HID lamps and mercury-containing thermostats removed from the site shall be recycled.
- F. Recycling on the job, subject to the Commissioner's approval, is encouraged on the site itself, such as the crushing and reuse of removed sound concrete and stone. Include these categories in the Waste Management Plan.

1.6 REFERENCES, RESOURCES:

- A. DDC encourages its contractors to seek information from websites and experts in salvage or recycling in order to minimize disposal costs. There are numerous opportunities to sell, salvage, or to donate materials and accrue tax benefits (which would accrue to the contractor); also there are outlets that will pick up, and in some cases buy recyclable materials. Examples of information resources are as follows:
1. DDC's Sustainable Design web site:
http://www.nyc.gov/html/ddc/html/design/sustainable_home.shtml This includes a manual on Construction and Demolition Waste Reduction and Recycling, a Sample Waste Management Plan and sample C&D Waste Management log. A standard Construction and Demolition Waste Management Log form is included at the end of this section.
 2. Web Resources
(Information only; no warranty or endorsement is implied.)
www.wastematch.org Site of New York Waste Match, a materials exchange database and service
www.bignyc.org Site of Build It Green NYC, a non profit outlet for salvaged and surplus building materials
www.usgbc.org Site of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D waste recycling
www.epa.gov/epawaste/index.htm Site of the U.S. Environmental Protection Agency that discusses construction and demolition waste issues, and links to other resources.

1.7 SUBMITTALS:

- A. The Contractor shall be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's subcontractors shall assist in the development of that Plan, and collect and deposit their waste and recyclable materials in accordance with the approved Plan.
- B. DRAFT WASTE MANAGEMENT PLAN. Within fifteen (15) days after receipt of 'Notice to Proceed', or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the Commissioner a Draft Waste Management Plan. Include separate sections for demolition and construction waste. The Plan shall demonstrate how the performance goals will be met, and contain the following:



1. List of materials targeted for reuse, salvage, or recycling, and names, addresses, and phone numbers of receiving facilities/companies that will be purchasing or accepting each material.
 2. Description of onsite and/or offsite sorting methods for all materials to be removed from site.
 3. If mixed construction and demolition waste is to be sorted off-site, provide a letter from the processor stating the average percentage of mixed construction and demolition waste they recycle.
 4. Landfill information; Names of landfills where non-recyclable/reusable/salvageable waste will be disposed, and list of applicable tipping fees.
 5. Materials handling procedures: A description of the means by which any-recyclable, salvaged, or reused materials will be protected from contamination, and collected in a manner that will meet the requirements for acceptance by the designated recycling processors.
 6. Transportation: A description of the means of transportation and destination for recycled materials.
 7. Meetings: Description of regular meetings to be held to address waste management.
 8. Sample spreadsheet and description of how the implementation of the plan will be documented on a monthly basis.
- C. FINAL WASTE MANAGEMENT PLAN. Within fifteen (15) days of Commissioner's approval of the Draft Plan, the Contractor shall submit a Final Waste Management Plan.
- D. PROGRESS REPORTS. The Contractor shall submit monthly a Waste Management Progress Report, containing the following information:
1. Project title, name of company completing report, and dates of period covered by the report
 2. Report on the disposal of all jobsite waste. A DDC C&D Waste Management Log form is available on the DDC Sustainable Design website and included at the end of this section. For each shipment of material removed from the site, provide the following:
 - a. Date and ticket number of removal
 - b. Identity of material hauler
 - c. Material Category
 - d. Total quantity of waste, in tones/cubic yards, by type
 - e. Quantity of waste salvaged, recycled and/or reused, by type
 - f. Total quantity of waste diverted from landfill (recycled, salvaged, reused) as a percentage of total waste
 - g. Recipient of each material type
 3. Provide monthly and cumulative project totals of waste, quantity diverted, and percentage diverted.
 4. Note that the unit of measure may be either tons or cubic yards, but must be consistent for all shipments and all materials throughout the project. Reports with inconsistent or mixed units will not be reviewed and will be returned for re-submission.
 5. Include legible copies of on-site logs, weight tickets and receipts. Receipts shall be from charitable organizations, recycling and/or disposal site operators who can legally accept the materials for the purpose of reuse, recycling or disposal. Contractor shall save such original documents for the life of the project plus seven (7) years.
- E. LEED Submittal: For LEED designated projects submit LEED Letter Template for Credit 2.2, signed by the Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.
- F. Refrigerant Recovery. Submit Qualification data for Refrigerant recovery technician. Statement of refrigerant recovery, signed by the refrigerant recovery technician responsible for recovering refrigerant



stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.8 QUALITY ASSURANCE:

- A. The Contractor shall designate a Waste Management Coordinator, to ensure compliance with this section. Coordinator shall be present at Project site full time for the duration of the project.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste management plans, documentation and implementation shall be discussed at the following meetings:
 - 1. Pre-demolition kick-off meeting
 - 2. Pre-construction kick-off meeting
 - 3. Regular job-site meetings
 - 4. Contractor toolbox meetings

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 WASTE PLAN IMPLEMENTATION:

- A. The Contractor shall implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. The Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials, and rubbish from the site in accordance with the approved Waste Management Plan. The Contractor shall oversee and document the results of the Plan. Monies received for salvaged materials shall remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications, or indicated on the drawings as belonging to others.
- C. Responsibilities of Subcontractors: Each subcontractor shall be responsible for collecting its waste, non-returned surplus materials, and rubbish, in accordance with the Waste Management Plan.
- D. Distribution. The Contractor shall distribute copies of the Waste Management Plan to each Subcontractor, Resident Engineer, Construction Manager, and Commissioner.
- E. Instruction: The Contractor shall provide on-site instruction of proper waste management procedures to be used by all parties in appropriate stages of the Project.
- F. Procedures. Conduct waste management operations to ensure minimum interference with site vegetation, roads, streets, walks and other adjacent occupied and used facilities.
 - 1. Collect co-mingled waste and/or separate all recyclable waste in accordance with the Plan. Specific areas on the Project site are to be designated, and appropriate containers and bins clearly marked with acceptable and unacceptable materials.
 - 2. Inspect containers and bins for contamination and remove contaminated materials if found.



3. Comply with the General Conditions for controlling dust and dirt, environmental protection, and noise control.

3.2 ADDITIONAL DEMOLITION AND SALVAGE REQUIREMENTS:

- A. Demolition and salvage of additional items indicated in other sections of the Project Specifications require special attention as part of the overall 75 % diversion from landfill. Specific requirements for special attention are designated in other sections of the Project Specifications.

3.3 DISPOSAL:

- A. General. Except for items or material to be salvaged, recycled or otherwise reused, remove waste material from the Project site and legally dispose of them in a manner acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning. Do not burn waste materials
- C. Disposal. Transport waste materials off Project Site and legally dispose of them.

END OF SECTION 01 74 19

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

No Text



**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and general procedural requirements for Closeout Procedures, including without limitation the following:
1. Definitions
 2. Substantial Completion
 3. Final Acceptance
 4. Warranties
 5. Final Cleaning
 6. Repair of the Work
- B. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- C. COMMISSIONING: Refer to the Addendum to identify whether this project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED- NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL
- D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
- E. Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or



combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. Substantial Completion: shall mean the written determination by the Commissioner that the Work required under the Contract is substantially, but not entirely, complete.
- D. Final Acceptance: shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

1.5 SUBSTANTIAL COMPLETION:

- A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, the Contractor shall complete and supply all items required by the contract specifications, General Conditions, Addendum to the General Conditions, change orders or other directives from the Commissioner's representatives. The required items will include all contract requirements for substantial completion, including but not limited to items related to releases, regulatory approvals, warranties and guarantees, record documents, testing, demonstration and orientation, final clean up and repairs, and all specific checklist of items by the Resident Engineer. (See Attachment "A" at the end of this section for sample requirements for Substantial Completion).
- B. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the work is not complete.
- C. Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Substantial Completion. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer makes a determination that the work is substantially complete and approves the Final Punch List and the date for Final Acceptance, he/she will so advise the Commissioner and recommend issuance of the Certificate of Substantial Completion. If the Resident Engineer determines that the work is not substantially complete, he/she will notify the Contractor of those items that must be completed or corrected before the Certificate of Substantial Completion will be issued.
 - 1 Re-inspection: Contractor shall request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2 Results of completed inspection will form the basis of requirements for Final Acceptance.

1.6 FINAL ACCEPTANCE:

- A. Preliminary Procedures: Before requesting final inspection for Final Acceptance of the Work, the Contractor shall complete the following. (Note that the following are to be completed, submitted as appropriate, and approved by the Commissioner, as applicable, prior to the final inspection and are not to be submitted for approval or otherwise at the final inspection unless specifically indicated). List exceptions in the request.
 - 1. Verify that all required submittals have been provided to the Commissioner including but not limited to the following:
 - a. Manufacturer's cleaning instructions
 - b. Posted instructions
 - c. As-built Record Documents (Drawings, specifications, and product data) as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, incorporating any changes required by the Commissioner as a result of the review of the submission prior to the pre-final inspection.
 - d. Operation and Maintenance Manuals, including Preventive Maintenance, Special Tools, Repair Requirements, Parts List, Spare Parts List, and Operating Instructions.



- e. Completion of required Demonstration and Orientation, as applicable, of designated personnel in operation and maintenance of systems, sub-systems and equipment.
 - f. Applicable LEED Building-submittals as described in Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS.
 - g. Construction progress photographs as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
2. Submit a certified copy of the final approved Punch List of items to be completed or corrected. The certified copy of the Punch List shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.
 3. Submit pest-control final inspection report and survey as required in Section 01 50 00, TEMPORARY FACILITIES AND CONTROLS.
 4. Submit record documents and similar final record information.
 5. Deliver tools, spare parts, extra stock and similar items.
 6. Complete final clean-up requirements including touch-up painting of marred surfaces.
 7. Submit final meter readings for utilities, as applicable, a measured record of stored fuel, and similar data as of the date when the City took possession of and assumed responsibility for corresponding elements of the work.
- B. Final Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Final Acceptance of the Work. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further work remains to be done, he/she will so advise the Commissioner and recommend the issuance of the determination of Final Acceptance. If the Resident Engineer determines that the work is not complete, he/she will notify the Contractor of those items that must be completed or corrected before the determination of Final Acceptance will be issued.
- C. Final Acceptance: The Work will be accepted as final and complete as of the date of the Resident Engineer's inspection if, upon such inspection, the Resident Engineer finds that all items on the Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

1.7 WARRANTIES:

- A. The items of materials and/or equipment for which manufacturer warranties are required are listed in Schedule B of the Addendum. For each item of material and/or equipment listed in Schedule B, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth in Schedule B and will be replaced or repaired within such specified period. The contractor shall deliver all required warranties to the Commissioner.
- B. Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.
- C. Submittal Time: Submit written Warranties on request of the Commissioner for designated portions of the Work where commencement of Warranties other than date of Substantial Completion is indicated.
- D. Partial Occupancy: Submit properly executed Warranties to the Commissioner within 15 days of completion of designated portions of the Work that are completed and occupied or used by the City.
- E. Organize the Warranty documents into an orderly sequence based on the Project Specification Divisions and Section Numbers.



1. Bind Warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES;" name and location of Project; Capitol Budget Project Number (FMS ID); and Contractor's and applicable subcontractor's name and address.
 3. Provide heavy paper dividers with plastic-covered tabs for each separate Warranty. Mark tab to identify the product or installation.
 4. Provide a typed description of each product or installation being warranted, including the name of the product, and the name, address, and telephone number of the Installer.
- F. When warranted materials and/or equipment require operation and maintenance manuals, provide additional copies of each required Warranty in each required manual. Refer to Section 01 78 39, CONTRACT RECORD DOCUMENTS, for requirements of Operation and Maintenance Manuals.

PART II – PRODUCTS

2.1 MATERIALS:

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART III – EXECUTION

3.1 FINAL CLEANING:

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations, as applicable, before requesting inspection for Final Acceptance of the Work for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.



- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
 - t. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests, as required in Section 01 50 00, TEMPORARY FACILITIES, SERVICES AND CONTROLS. Prepare and submit a Pest Control report to the Commissioner.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 REPAIR OF THE WORK:

- A. Subject to the terms of the Contract the Contractor shall complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Contractor shall repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.



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3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

CLOSEOUT PROCEDURES
01 77 00 -6



SECTION 01 77 00

ATTACHMENT 'A'

The following list is a general sample of Substantial Completion requirements, including but not limited to:

1. Prepare and submit a list to the Resident Engineer, of incomplete items, the value of incomplete construction, and reasons the work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable Governing Authorities, including, but not limited to, Department of Buildings (DoB); Department of Transportation (DoT); Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation to include, but not limited to, the following:
 - a. Building Permits, Applications and Sign-offs.
 - b. Permits and Sign-off for construction fences; sidewalk bridges; scaffolds, cranes and derricks; utilities; etc.
 - c. Certificates of Inspections and Sign-offs.
 - d. Required Certificates and Use Permits.
 - e. Certificate of Occupancy (C.O.), Temporary Certificate of Occupancy (T.C.O.) or Letter of Completion as applicable.
4. Submit specific warranties required by the specifications, final certifications, and similar documents.
5. Prepare and submit Record Documents as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, including but not limited to; approved documentation from Governing Authorities; as-built record drawings and specifications; product data; operation and maintenance manuals; Final Completion construction photographs; damage or settlement surveys; final property surveys; and similar final record information. The Resident Engineer will review the submission and provide appropriate comments. If comments are significant the initial submission will be returned to the Contractor for correction and re-submission incorporating the comments prior to the Final Inspection.
6. Record Waste Management Progress Report: Submit C&D Waste Management logs, with legible copies of weight tickets and receipts required in accordance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
7. If applicable submit LEED Letter Template in accordance with the requirements of Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS.
8. Schedule applicable Demonstration and Orientation required in other Sections of the Project Specifications and as described in Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.
9. Deliver tools, spare parts, extra materials, and similar items to location designated by Resident Engineer. Label with manufacturer's name and model number where applicable.
10. Make final changeover of permanent locks and deliver keys to the Resident Engineer. Advise Commissioner of changeover in security provisions.
11. Complete startup testing of systems as applicable.
12. Submit approved test/adjust/balance records.
13. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements as directed by the Resident Engineer.
14. If applicable complete Commissioning requirements as defined in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.
15. Complete final cleaning requirements, including touchup painting.
16. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.



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SECTION 01 78 39
CONTRACT RECORD DOCUMENTS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and general procedural requirements for Contract Record Documents, including:
1. As-built Contract Record Drawings.
 2. As-built marked-up copies of Record Specifications, addenda and Change Orders.
 3. As-built marked-up Product Data
 4. Record Samples
 5. Construction Record Photographs
 6. Operating and Maintenance Manuals
 7. Final Site Survey
 8. Guarantees and Warranties
 9. Waste Disposal Documentation
 10. LEED Materials and Matrix
 11. Miscellaneous Record Submittals
- B. The Department of Design and Construction, at the start of construction (kick-off meeting), will furnish to the Contractor at no cost a complete set of Contract Drawings Mylars (reproducible) pertaining to the work to be performed under the Contract. It is the responsibility of the Contractor to modify the Contract Drawings to indicate all changes and corrections, if any, occurring in the work as actually installed. The Contractor is required to furnish all other Mylar (reproducible) drawings, if necessary, such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all work in detail as actually completed. All professional seals must be blocked out. Title box complete with project title and Design Consultants' names will remain.
- C. Maintenance of Documents and Samples: The Contractor shall maintain, during the progress of the work, an accurate record of the work as actually installed, on Contract Record Drawings, on Mylar (reproducible), in ink. Store record documents and samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition. Make documents and samples available at all times for the Resident Engineer's inspections.

The Contractor's attention is particularly directed to the necessity of keeping accurate records of all subsurface and concealed work, so that the Contract Record Drawings contain this information in exact detail and location. Contract Record Drawings shall also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

For projects designated to achieve a LEED rating the Contractor shall receive a copy of the project's LEED scorecard for the purpose of monitoring compliance with the target objectives and to facilitate coordination with the LEED Consultant. The Contractor shall receive periodic updates of this scorecard,



and is required to submit the final version of the Scorecard at Substantial Completion with other project Record Documents.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- C. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 PROJECT CLOSEOUT PROCEDURES

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

A. As-Built Contract Record Drawings: Comply with the following:

1. Progress Submission: As directed by the Resident Engineer, submit progress As-Built Contract Record Drawings at the 50% Construction Completion stage.
2. Final Submission: Before substantial completion payment, the Contractor shall furnish to the Commissioner one (1) complete set of marked-up Mylar (reproducible) As-Built Contract Record Drawings, in ink indicating all of the work and locations as actually installed, plus one (1) set of paper prints which will be furnished to the sponsoring agency by DDC.
3. As-Built Contract Record Drawings shall be of the same size as that of the Contract Drawings, with a one (1) inch margin on three (3) sides and a two (2) inch margin on the left side for binding.
4. Each As-Built Contract Record Drawing shall bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (1/2) inch high, and contain the following data:

AS-BUILT CONTRACT RECORD DRAWING

Contractor's Name _____
 Contractor's Address _____
 Subcontractor's Name (where applicable) _____
 Subcontractor's Address _____
 Made by: _____ Date _____
 Checked by: _____ Date _____

Commissioner's Representatives
 (Resident Engineer) DDC
 (Plumbing Inspector) DDC
 (Heating & Ventilating Inspector) DDC
 (Electrical Inspector) DDC



5. Record Drawing Title Sheet: The Contractor shall prepare a title sheet, the same size as the Contract Record Drawings, which shall contain the following:
 - a. Heading:
The City of New York
Department of Design and Construction
Division of Public Buildings
 - b. Capital Budget Project Number (FMS ID)
 - c. Name and Location of Project
 - d. Contractor's Name and Address
 - e. Subcontractor's Name and Address (where applicable)
 - f. Record of changes (a caption description of work affected, and the date and number of Change Order or other authorization)
 - g. List of Record Drawings
- B. Record Specifications, Addenda and Change Order: Submit to the Commissioner two (2) copies each of marked-up Record Specifications, Addenda and Change Orders.
- C. Record Product Data: Submit to the Commissioner two (2) sets of Record Product Data.
- D. Record Construction Photographs: Submit to the Commissioner final as-built construction photographs and negatives of the completed work as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
- E. Operating and Maintenance Manuals:
 1. Submit three (3) copies each of preliminary manuals to the Resident Engineer for review and approval. The Contractor shall make such corrections, changes and/or additions to the manual until deemed satisfactory by the Resident Engineer. Deliver three (3) copies of the final approved manuals to the Resident Engineer for distribution.
 2. Commissioning: Comply with the requirements of Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, as well as the requirements set forth in sections of the Project Specifications, for projects designated for Commissioning. Submit four (4) copies each of data designated to be included in the Commissioning Operation and Maintenance Manual to the Resident Engineer. The Resident Engineer will forward such data to the Commissioning Authority/Agent (CxA) for review and comment. The Contractor shall make such corrections, changes and/or additions to the data until deemed satisfactory and deliver four (4) copies of the final data to the Resident Engineer for use by the Commissioning Authority/Agent (CxA) to prepare the Commissioning Operation and Maintenance Manual.
 - a. Non-Commissioning Data: All remaining data not designated for Commissioning and required as part of Maintenance and Operation Manual shall be prepared and assembled in accordance with the requirements of this section for Operating and Maintenance Manuals.
- F. Final Site Survey: Submit Final Site Survey as described in Section 01 73 00, EXECUTION, in quantities requested by the Commissioner, signed and sealed by a Land Surveyor licensed in the State of New York.
- G. Guarantees and Warranties.
- H. Waste Disposal Documents and Miscellaneous Record Documents.



PART II – PRODUCTS

2.1 CONTRACT RECORD DRAWINGS:

- A. Record Prints: The Contractor shall maintain one set of blue- or black-line white prints as applicable of the Contract Drawings and Shop Drawings. If applicable, the Record Contract Drawings and Shop Drawings shall incorporate the arrangement of the work based on the accepted Master Coordination Drawing(s) as described in Section 01 33 00, SUBMITTAL PROCEDURES.
1. Preparation: The Contractor shall mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Change Orders: All changes from Contract Drawings shall be distinctly encircled and identified by Change Order number correlating to changes listed on the "Title Sheet." The Contractor shall show within the encircled areas the work as actually installed.
- B. Content: Types of items requiring marking include, but are not limited to, the following:
1. Dimensional changes to Drawings.
 2. Revisions to details shown on Drawings.
 3. Depths of foundations below first floor.
 4. Locations and depths of underground utilities.
 5. Revisions to routing of piping and conduits.
 6. Revisions to electrical circuitry.
 7. Actual equipment locations.
 8. Duct size and routing.
 9. Locations of concealed internal utilities.
 10. Changes made by Change Order
 11. Changes made following Commissioner's written orders.
 12. Details not on the original Contract Drawings.
 13. Field records for variable and concealed conditions.
 14. Record information on the Work that is shown only schematically.
- C. Progress Record Mylar's (reproducible): As directed by the Resident Engineer at 50% construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When directed by the Resident Engineer transfer progress mark-ups to a full set of Mylar's (reproducible) and submit one blue line or black line record copy to the Resident Engineer. The marked-up Mylar's (reproducible) shall be retained by the contractor for completion of mark-up and final submission.
- D. Final Contract Record Mylar's (reproducible): Immediately before final inspection for Certificate of Substantial Completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When authorized, complete mark-up of a full set of corrected Mylar's (reproducible) of the Contract Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
 2. Refer instances of uncertainty to Resident Engineer for resolution.
 3. Print the As-Built Contract Drawings and Shop Drawings for use as Record Transparencies as described in Sub-Section 1.5.



2.2 RECORD SPECIFICATIONS, ADDENDA AND CHANGE ORDERS:

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders and Record Drawings where applicable.
 6. Upon completion of mark-up, submit two (2) complete copies of the marked-up Record Specifications to the Commissioner.

2.3 RECORD PRODUCT DATA:

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. If possible, a Change Order proposal should include resubmitting updated Product Data. This eliminates the need to mark up the previous submittal.
 4. Note related Change Orders and Record Drawings where applicable.
 5. Upon completion of mark-up submit to the Commissioner two (2) sets of the marked-up Record Product Data.
 6. Where Record Product Data is required as part of Maintenance Manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

2.4 RECORD SAMPLE SUBMITTAL:

- A. Prior to the date of Substantial Completion, the Contractor shall meet with the Resident Engineer at the site to determine which of the Samples maintained during the construction period shall be transmitted to the Commissioner for record purposes.
- B. Comply with the Resident Engineer's instructions for packaging, identification marking and delivery to DDC. Dispose of other samples as specified for disposal of surplus and waste material.

2.5 OPERATING AND MAINTENANCE MANUALS:

- A. The Contractor shall provide preliminary and final versions of Operating and Maintenance Manuals required for those systems, equipment and materials listed in other Sections of the Project Specifications.
- B. Format: Prepare and assemble Operation and Maintenance Manuals in heavy-duty, 3-ring, hardback loose leaf binders in the form of an instructional manual. All binders for each discipline shall be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front shall contain permanently attached labels displaying the following:



1. Heading:
The City of New York
Department of Design and Construction
Division of Public Buildings
 2. Capital Budget Project Number (FMS ID)
 3. Name and Location of Project
 4. Contractor's name and Address
 5. Subcontractor's Name and Address (where applicable)
 6. Dates of the work covered by the contents of the Project Manual.
 7. Binder spine shall display Project Number (FMS ID) and date of completion.
- C. Organization: Include a section in the directory for each of the following:
1. List of documents
 2. List of systems
 3. List of equipment
 4. Table of contents
- D. Arrange content by systems under Specification Section numbers and sequence of Table of Contents of the Project manual. Provide tabbed flyleaf for each separate product, equipment and/or system/subsystem with typed description of product and major component parts of equipment.
- E. Safety warnings or cautions shall be visibly highlighted within each maintenance procedure. Use of such highlights shall be limited to only critical items and shall not be used in an excessive manner which would reduce their effectiveness.
- F. For each product or system, list names, addresses and telephone numbers of Subcontractors and Suppliers, including local source of supplies and replacement parts. Vendors and Supplier listings are to include names, addresses and telephone numbers, including nearest field service telephone numbers.
- G. Where contents of the manual include any manufacturer's catalog pages, clearly indicate the precise items and options included in the installation and delete all manufacturers' data regarding products not included in the installation.
- H. All material within manuals shall be new. Copies used for prior submittals or used in construction shall not be used.
- I. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.
- J. Manuals shall present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations shall preferably consist of line drawings. All applicable drawings shall be included. If available, color photograph prints may be included.
- K. Preliminary manual editions shall be as technically complete as the final manual edition. All illustrations shall be in final forms.
- L. Final manual editions shall be technically accurate and complete and shall represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All illustrations, text and tabular material shall be in final form. All shop drawings shall be included as specified in individual Specification Sections.
- M. Building products, applied materials, and finishes: Include product data, with catalog number, size, composition, and color texture designations. Where applicable, provide information for re-ordering custom manufactured products.
- N. Instructions for care and maintenance: Include manufacturers' recommendations for cleaning agents and methods, and recommended schedule for cleaning and maintenance.



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- O. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical compositions, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- P. Additional Requirements: Specified in individual Specification Sections.

2.6 DEMONSTRATION AND ORIENTATION DVD:

- A. Non-Commissioned Projects: The Contractor shall submit final version of applicable Demonstration and Training DVD recordings in compliance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

2.7 GUARANTEES AND WARRANTIES:

- A. SCHEDULE B – Requirements for guarantees and warranties for the Project are set forth in Schedule B, which is included as part of the Addendum.
- B. FORM – For all guarantee requirements set forth in Schedule B, the Contractor shall provide a written guaranty, in the form set forth herein.
- C. Submit fully executed and signed manufacturers' Warranties as listed in the Project Specifications and outlined in Schedule B of the Addendum. Refer to Section 01 77 00, CLOSEOUT PROCEDURES for submittal requirements.



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GUARANTY

DDC PROJECT # _____

PROJECT DESCRIPTION _____

CONTRACT # _____

SPECIFICATION SECTION # AND TITLE _____

GUARANTY TO BE IN EFFECT FROM _____

TO _____

The Contractor hereby guarantees that the work specified under the above section of the aforesaid Contract will be free from defects of material and/or workmanship, for the period indicated above.

The Contractor also guarantees that it will promptly repair, restore, rebuild or replace whichever may be deemed necessary by the City, any or all defective material or workmanship of the aforementioned section, that may appear within the guaranty period and any finished work to which damage may occur because of such defects, to the satisfaction of the City and without any cost or expense to the City.

The Contractor hereby agrees to pay to the City the cost of the repairs or replacements should the City make the same because of the failure of the Contractor to do so.

Contractor: _____

By: _____
Signature of Partner or Corporate Officer

Print Name: _____

Subscribed and sworn to before me this
day of _____, year _____

Notary Public



2.8 WASTE DISPOSAL DOCUMENTATION:

- A. Certify and deliver to the Commissioner all documentation including reports, receipts, certificates, records etc. for the collection, handling, storage, classification, testing, transportation, recycling and/or disposal of all Non-Hazardous Construction Waste as required by Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, and Hazardous Waste as required by other Project Specification Sections. Certify compliance with all applicable governing laws, codes, rules and regulations.

2.9 MISCELLANEOUS RECORD DOCUMENTS:

- A. Refer to other Project Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete miscellaneous records and place in good order, properly identified and bound or otherwise organized to allow for use and reference.
- B. Submit three (3) copies of each document to the Commissioner or as otherwise directed by the Commissioner.

PART III – EXECUTION

3.1 RECORDING AND MAINTENANCE:

- A. Recording: Maintain one copy of each submittal during the construction period for Contract Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to the Contract Record Documents for the Resident Engineer's reference during normal working hours.

END OF SECTION 01 79 39



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SECTION 01 79 00

DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 79 00

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and procedural requirements, when set forth in sections of the Project Specifications, for instructing facility's personnel, including the following:
1. Demonstration of operation of systems, subsystems, and equipment.
 2. Owner's Pre-Acceptance Orientation in operation and maintenance of systems, subsystems, and equipment.
 3. Demonstration and Orientation videotapes. (Non-Commissioned Projects)
- B. The Contractor shall provide the services of equipment manufacturers orientation specialists experienced in the type of equipment to be demonstrated.
- C. Separate Orientation sessions shall be conducted for mechanical operations and maintenance personnel and for electronic and electrical maintenance personnel.
- D. Commissioning: Refer to the Addendum to identify whether this project is to be Commissioned. For Commissioned projects the Contractor shall provide Demonstration and Orientation as described in this section and cooperate with the Commissioning Authority/Agent (CxA) to implement Commissioning requirements as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 77 00 CLOSEOUT PROCEDURES
- D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
- E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS
- F. Specific requirements for demonstration and training indicated in other sections of the Project Specifications

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.



- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

- A. Instruction Program: Submit three (3) copies of outline of instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Commissioner for approval no less than thirty (30) days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.
1. At completion of training, submit three (3) complete training manual(s) and three (3) applicable DVD recording(s) to the Commissioner for the facility's and City's use.
- B. Qualification Data: For facilitator, instructor and Videographer.
- C. Attendance Record: For each orientation module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each orientation module, submit results and documentation of performance-based test.
- E. Submit all final orientation material to the Resident Engineer a minimum of fourteen (14) days prior to the scheduled training.
- F. Demonstration and Orientation Recordings:
1. Non-Commissioned Projects:
 - a. The Contractor shall submit to the Commissioner three (3) copies of Demonstration and Orientation DVD (Digital Video Disk) recordings within seven (7) days of end of each training module.
 - b. Identification: On each copy, provide an applied label with the following information:
 - 1) Project Contract I.D. Number
 - 2) Project Contract Name
 - 3) Name of Contractor
 - 4) Name of Subcontractor as applicable
 - 5) Name of Design Consultant
 - 6) Name of Construction Manager as applicable
 - 7) Date recorded.
 - 8) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - 9) Table of Contents including list of systems covered.
 - c. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding DVD recording. Include name of Project and date of recording on each page.
 2. Commissioned Projects:
 - a. Demonstration and Orientation DVD recordings for Commissioned projects will be recorded by the Commissioning Authority/Agent (CxA) under separate contract with the City of New



York. The Contractor performing Demonstration and Orientation shall cooperate with the CxA in the recording of each Demonstration and Orientation module.

1.6 QUALITY ASSURANCE:

- A. Facilitator Qualifications: A firm or individual experienced in orientation or educating maintenance personnel in an orientation program similar in content and extent to that indicated for this Project.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00, QUALITY REQUIREMENTS, experienced in operation and maintenance procedures and orientation.
- C. Videographer Qualifications: A professional Videographer who has experience with orientation and construction projects.
- D. Pre-instruction Conference: Schedule with the Resident Engineer a conference at Project site to comply with requirements in Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION. Review methods and procedures related to demonstration and orientation including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of instruction.
 - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.7 COORDINATION:

- A. Coordinate instruction schedule with the Resident Engineer and facility's operations. Adjust schedule as required to minimize disrupting facility's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of orientation modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the Commissioner.

PART II – PRODUCTS

2.1 INSTRUCTION PROGRAM:

- A. Program Structure: Develop an instruction program that includes individual orientation modules for each system and equipment not part of a system, as specified and required by individual Specification Sections.
- B. Orientation Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.



- d. Regulatory requirements.
 - e. Equipment function including auxiliary equipment and systems.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties
 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning



- e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
 - h. Housekeeping practices
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART III – EXECUTION

3.1 INSTRUCTION:

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and the Resident Engineer for the number of participants, instruction times, and location.
- B. The Contractor shall engage qualified instructors to instruct facility's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. Scheduling: Schedule instruction with the Resident Engineer at mutually agreed times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule orientation with the Resident Engineer with at least fourteen (14) days' advance notice.
- D. Evaluation: At conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral a written or a demonstration performance-based test.
- E. Cleanup: Collect and remove used and leftover educational materials from project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial orientation use.

3.2 DEMONSTRATION AND ORIENTATION RECORDINGS:

- A. Non-Commissioned projects:
 - 1. The Contractor shall engage a qualified commercial Videographer to record demonstration and orientation sessions. Record each orientation module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 2. At beginning of each orientation module, record each chart containing learning objective and lesson outline.
 - 3. All recordings must be close captioned.
 - 4. Recording Format: Provide high-quality DVD (Digital Video Disk) format.
 - 5. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and orientation. Display continuous running time.
 - 6. Narration: Describe scenes on the recording by audio narration by microphone while recording or by dubbing audio narration off-site after. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.



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7. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from opposite the corresponding narration segment.

B. Commissioned Projects:

Refer to the Addendum to determine if the project is to be Commissioned.

1. The Commissioning Authority/Agent (CxA) under separate contract with the City of New York will assess and comment on the adequacy of the Orientation Instruction sessions by reviewing the Orientation and Instruction program and agenda provided by each contractor. The provider of the Orientation program will videotape the sessions and provide a copy to the CxA for final review and comments. If necessary, Contractor shall edit the DVD recording per CxA comments.

END OF SECTION 01 79 00



SECTION 01 81 13
SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. **LEED BUILDING - GENERAL REQUIREMENTS:**

The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED™ Green Building rating. Specific project requirements related to this goal are listed in the applicable paragraphs of this section of the General Conditions. The Contractor shall ensure that these requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated LEED BUILDING criteria.

B. This Section includes:

1. Definitions
2. LEED Provisions
3. LEED Building Submittals
4. LEED Building Submittal Requirements
5. LEED Action Plan

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|---------------------|--|
| A. | Section 01 74 19 | CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL |
| B. | Section 01 81 13.13 | VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,
SEALANTS, PAINTS AND COATINGS |
| C. | Section 01 81 19 | INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS |
| D. | Section 01 91 13 | GENERAL COMMISSIONING REQUIREMENTS |

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Agrifiber Products: Products derived from recovered agricultural waste fiber from sources such as cereal straw, sugarcane bagasse, sunflower husk, walnut shells, coconut husks, and agricultural prunings, processed and mixed with resins to produce panels with characteristics similar to composite wood.



- C. **Composite Wood:** Products composed of wood or plant particles or fibers bonded by a synthetic resin or binder to produce panels such as plywood, particleboard, and medium density fiberboard (MDF). Does not include hardboard, structural panels, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber.
- D. **Design Consultant:** "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- E. **Forest Stewardship Council (FSC) Certified Wood:** Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
- F. **LEED:** The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council.
- G. **Rapidly Renewable Materials:** Materials made from agricultural products that are typically harvested within a ten-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
- H. **Regionally Manufactured Materials:** Materials that are manufactured within a radius of 500 miles from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
- I. **Regionally Extracted, Harvested, or Recovered Materials:** Materials which are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.
- J. **Recycled Content:** The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
 2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.
 3. "Pre-consumer" may also be referred to as "post-industrial".
- K. **Solar Reflectance Index (SRI):** A measure of a material's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is equal to 0, and a standard white (reflectance 0.80, emittance of 0.90) is equal to 100.
- L. **Volatile Organic Compound (VOC):** Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.



1.5 LEED PROVISIONS:

- A. Refer to the Addendum for the LEED rating to be achieved for this project. The provisions to achieve this LEED rating are integrated within the project construction documents and specifications. The Contractor is specifically directed to the "LEED BUILDING Performance Criteria" and "LEED BUILDING Submittals" sections within the contract specification. Additional LEED requirements are met through aspects of the project design, including material and equipment selections, which may not be specifically identified as LEED BUILDING requirements. Compliance with the requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests.

1.6 LEED BUILDING SUBMITTALS:

- A. Scope: LEED BUILDING submittals are required for all installed materials included in General Construction work. LEED BUILDING Submittals are only required for field-applied adhesives, sealants, paints and coatings included in Plumbing, Mechanical and Electrical work. Submit all required LEED BUILDING submittals in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. Applicability: The extent of the LEED BUILDING Submittals varies depending on the specification section. Applicable LEED BUILDING Submittals are listed under the "LEED BUILDING Submittals" heading in each specification section. The detailed requirements for the LEED BUILDING Submittals are defined in Item C below.
- C. Detailed Requirements: Sub-Sections 1.6 C.1 through 1.6 C.3 below defines the information and documents to be provided for each type of LEED BUILDING Submittal as identified in the LEED Submittal Requirements of each specification section:
1. ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM (EBMCF)[GHI]: Information to be supplied for this form (blank sample copy attached at end of this Section to be modified as appropriate to the project) shall include some or all of the following items, as identified in the LEED Submittal Requirements of each specification section:
 - a. Cost breakdowns for the materials included in the contractor or sub-contractor's scope of work. Cost reporting shall include itemized material costs (excluding the contractor's labor, equipment, overhead and profit).
 - b. The percentages (by weight) of post-consumer and/or post-industrial recycled content in the supplied product(s).
 1. For each product with recycled content, also indicate the total recycled content value ($1/2 \times \text{pre-consumer percentage} \times \text{product value} + 1 \times \text{post-consumer percentage} \times \text{product value} = \text{total recycled content value}$).
 2. See additional requirements for concrete below.
 - c. Identification (Yes/No) of materials manufactured within 500 miles of the project site AND containing raw materials harvested or extracted within 500 miles of the project site.
 - 1) Indicate the percentage by weight, relative to the total weight of the product that meets these criteria.
 - 2) Indicate the point of harvest/extraction/recovery of regional raw materials, the point of final assembly of regional manufactured products, and the distance from each point to the project site.
 - d. Volatile Organic Compound (VOC) content of all field-applied adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon, less water.
 - 1) For detailed requirements refer to Section 01 81 13.13 VOC LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS.
 - e. The amount of "Forest Stewardship Council (FSC) Certified" wood products if used in the Project.
 - 1) Record only new FSC-certified wood products. Do not record reclaimed, salvaged, or recycled FSC-certified wood products.



- 2) Reclaimed, salvaged, or recycled FSC-certified wood may be recorded as post-consumer recycled content.
 - f. The amount of Rapidly Renewable materials if used in the Project.
 - 1) Indicate the type of rapidly renewable material used, and the percentage by weight, relative to the total weight of the product, that consists of rapidly renewable material.
 - g. The percentage (by weight), relative to the total weight of cementitious materials, of supplementary cementitious materials or pozzolans such as fly ash used in each concrete mix used in the Project.
 - 1) For each concrete mix, provide a complete breakdown of all components, by weight and by cost.
 - h. Identification (Yes/No) of composite wood or agrifiber products used in the project that are free of added urea-added formaldehyde resins.
 - i. Identification (Yes/No) of flooring products used in the project that have Carpet and Rug Institute (CRI) Green Label or Green Label Plus certification, or Resilient Floor Covering Institute FloorScore certification.
 - 1) Untreated solid wood flooring, and mineral-based flooring products such as tile, masonry, terrazzo, and cut stone that have no organic-based coatings or sealants, are excluded from this requirement.
 - j. The EBMCF shall record the above information only for those materials or products permanently installed in the project. The EBMCF shall record VOC content, composite and agrifiber products, and CRI or FloorScore ratings only for those materials or products permanently installed within the weather barrier of the LEED building.
2. **EBMCF BACK-UP DOCUMENTATION:** These documents are used to validate the information provided on the EBMCF (except cost data). For each material listed on the EBMCF, provide documentation to certify the material's LEED BUILDING attributes, as applicable:
- a. **RECYCLED CONTENT:** Provide published product literature or letter of certification on the manufacturer's letterhead certifying the amounts of post-consumer and/or post-industrial content.
 - b. **REGIONAL MANUFACTURING AND REGIONAL RAW MATERIALS (WITHIN 500 MILES):** Provide published product literature or letter of certification on the manufacturer's letterhead indicating the city/state where the manufacturing plant is located, where each of the raw materials in the product were extracted, harvested or recovered and the distance in miles from the project site.
 - 1) If only some of the raw materials for a particular product or assembly originate within 500 miles of the project site, provide the percentage (by weight) that these materials comprise in the complete product.
 - c. **VOC CONTENT:** Provide Material Safety Data Sheets (MSDS) certifying the Volatile Organic Compound (VOC) content of the adhesive, sealant, paint, or coating products. VOC content is to be reported in grams/liter or lbs./gallon, less water. If the MSDS does not show the product's VOC content, this information must be provided through other published product literature from the manufacturer, or stated in a letter of certification from the product manufacturer on the manufacturer's letterhead.
 - d. **RAPIDLY RENEWABLE MATERIALS:** If used in the project, provide published literature or letter of certification on the manufacturer's letterhead certifying the percentage of each product that is rapidly renewable (by weight).
3. **PRODUCT CUT SHEETS:** Provide product cut sheets with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project.
4. **CRI GREEN LABEL PLUS CERTIFICATION:** For carpets and carpet cushions, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the "Green Label Plus" IAQ testing program of the Carpet and Rug Institute of Dalton, GA.



5. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER RESINS:** For all composite wood, engineered wood and agrifiber products (including plywood, particleboard, and medium density fiberboard), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products do not contain added urea-formaldehyde resins.
6. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER LAMINATING ADHESIVES:** For all laminating adhesives used with composite wood, engineered wood and agrifiber products (e.g., adhesives used to laminate wood veneers to an engineered wood substrate), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the adhesive products do not contain urea-formaldehyde.
7. **FSC-CERTIFIED WOOD:**
 - a. If used in the project, provide chain of custody documents and copies of invoices regarding wood products, including whether or not such wood product is FSC-certified.
 - b. If used in the project, for assemblies, provide the percentage (by cost and by weight) of the assembly that is FSC-certified wood.
 - c. If used in the project, for assemblies, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the percentage that is FSC-certified wood.
8. **GREEN SEAL COMPLIANCE:** Provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the following product types comply with the VOC limits and chemical component restrictions developed by the Green Seal organization of Washington, DC:
 - a. Interior Architectural Paints and Coatings: refer to Green Seal standard GS-11 (1st edition, May 1993)
 - b. Anti-corrosive and Anti-rust paints: refer to Green Seal standard GC-03 (2nd Edition, January 1997)
 - c. Aerosol Adhesives: refer to Green Seal standard GS-36 (1st edition, October 2000)
9. **HIGH ALBEDO PAVING AND WALKWAY MATERIALS:** For paving and walkway materials made from concrete or brick provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying a minimum Solar Reflectance Index (SRI) value of 29. SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.
10. **HIGH ALBEDO ROOFING MATERIALS:** For exposed roofing membranes, pavers, and ballast products, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following minimum Solar Reflectance Index (SRI) values:
 - a. 78 for low-sloped roofing applications (slope \leq 2:12)
 - b. 29 for steep-sloped roofing applications (slope $>$ 2:12)

SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.

Vegetated roof surfaces are exempt from the SRI criteria.
11. **LOW MERCURY LAMPS:** For all fluorescent, compact fluorescent, and HID lamps installed in the project, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying:
 - a. The mercury content or content range per lamp in milligrams or picograms;
 - b. The design light output per lamp (light at 40% of a lamp's useful life) in lumens; and
 - c. The rated average life of the lamp in hours.



In addition, provide the total number of each lamp type installed in the project.

12. **FLOORSCORE CERTIFICATION:** For all hard surface flooring, including vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, and wall base, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the current FloorScore standard requirements.
13. **CONCRETE:** Provide concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state in which the concrete manufacturer or supplier is located.
14. **INTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed within the building's weather barrier, provide manufacturer's cut sheets indicating the following:
 - a. Fixture power in watts.
 - b. Initial lamp lumens.
 - c. Photometric distribution data.
 - d. Dimming capability, in range of percentages.
15. **EXTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed on site, provide manufacturer's cut sheets indicating the following:
 - a. Fixture power in watts.
 - b. Initial lamp lumens.
 - c. Photometric distribution data.
 - d. Range of field adjustability, if any.
 - e. Warranty of suitability for exterior use.
16. **ALTERNATIVE TRANSPORTATION:** Provide manufacturer's cut sheets and/or shop drawings for the following items installed on site:
 - a. Bike racks, including total number of bicycle slots provided.
 - b. Signage indicating parking spaces reserved for electric or low-emitting vehicles and for carpools/vanpools, including total number of signs.
17. **WATER CONSERVING FIXTURES:** For all water consuming plumbing fixtures and fittings, provide manufacturer's cut sheets showing maximum flow rates and/or flush rates.
18. **ENERGY SAVING APPLIANCES:** Provide manufacturer's cut sheets and published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the product's rating under the U.S. EPA/DOE Energy Star program, for all of the following:
 - a. Appliances (i.e., refrigerators, dishwashers, microwave ovens, televisions, clothes washers, clothes dryers, chilled water dispensers).
 - b. Office equipment (i.e., copy machines, fax machines, plotters/printers, scanners, binding and publishing equipment).
 - c. Electronics (i.e., servers, desktop computers, computer monitor displays, laptop computers, network equipment).
 - d. Commercial food service equipment
19. **GLAZING:** For glazing in any windows, doors, storefront and window wall systems, curtainwall systems, skylights, and partitions, provide manufacturer's cut sheets indicating the following:
 - a. Glazed area.
 - b. Visible light transmittance.
 - c. Solar heat gain coefficient.
 - d. Fenestration assembly u-factor.



20. VENTILATION: Provide manufacturer's cut sheets for the following:
- Carbon dioxide monitoring systems, if any, installed to measure outside air delivery.
 - Air filters: for detailed requirements refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS.
21. REFRIGERATION: For all refrigeration equipment, provide manufacturer's cut sheets indicating the following:
- Equipment type.
 - Equipment life. Default values specified by the 2007 ASHRAE Applications Handbook will be used unless otherwise demonstrated by the manufacturer's guarantee and an equivalent long-term service contract.
 - Refrigerant type.
 - Refrigerant charge in pounds of refrigerant per ton of gross cooling capacity.
 - Tested refrigerant leakage rate, in percent per year. A default rate of 2% will be used unless otherwise demonstrated by test data.
 - Tested end-of-life refrigerant loss, in percent. A default rate of 10% will be used unless otherwise demonstrated by test data.

1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

- A. The LEED BUILDING Submittal information shall be assembled into one package per contract specification section(s) (or per subcontractor), and submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Incomplete or inaccurate LEED BUILDING submittals may be used as the basis for the rejection of products or assemblies. Incomplete or inaccurate LEED BUILDING Submittals may be used as the basis for rejecting the submitted products or assemblies.

1.8 LEED ACTION PLANS:

- A. Construction Waste Management Plan- Refer to Section 01 74 19, Construction Waste Management and Disposal for detailed submittal requirements.
- B. Construction IAQ Management Plan- Refer to Section 01 81 19, Indoor Air Quality Requirements for LEED Buildings, for detailed submittal requirements.
- C. Erosion and Sedimentation Control Plan:
- The Plan shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC) or the 2003 EPA Construction General Permit, whichever is more stringent.
 - The Plan shall be submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
 - Detailed requirements: ESC Plan
 - Include the Stormwater Pollution Prevention Plan, if required.
 - Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.
 - Describe all site work that will be implemented on the project.
 - Provide site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, and inlet/catch basin protection.
 - Describe the inspection and maintenance of the ESC measures. Provide a construction schedule indicating weekly site review.
 - Describe reporting and documentation measures.
 - Detailed requirements: ESC Measures



5. Submittal requirements: ESC Tracking Log
 - a. Note date of major rain events, describe damage, describe any repairs or maintenance performed, and note responsible party.
 - b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party.
 - c. Submit monthly.
6. Implementation
 - a. The Contractor shall implement the ESC Plan, coordinate the Plan with all affected trades, and designate one individual as the Erosion and Sedimentation Control Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.
 - b. The Contractor shall be responsible for the provision, maintenance, and repair of all ESC measures.
 - c. Demonstration. The Contractor shall provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
 - d. Meetings. Urgent or ongoing ESC issues shall be discussed at weekly on-site job meetings.

1.9 QUALITY ASSURANCE:

- A. The Contractor shall implement all LEED Action Plans, coordinate the Plans and LEED Building Submittals with all affected trades, and designate one individual as the Sustainable Construction Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of LEED activities with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. Responsibilities of Contractor's Subcontractors: The Contractor shall be responsible for his/her subcontractors complying with the LEED Action Plans and for providing required LEED documentation as required for the project.
- C. Distribution and Compilation: The Contractor shall be responsible for distributing the EBMCF and any other forms or templates required for the subcontractors to record LEED documentation. The Contractor shall also be responsible for collecting and compiling EBMCF information into packages as described in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. Meetings: Sustainable design and construction issues shall be discussed at the following meetings:
 1. Demolition kick-off meeting
 2. Construction kick-off meeting
 3. Construction kick-off meeting for LEED (independent meeting)
 4. Weekly job-site progress and coordination meetings
 5. Closeout meeting

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 13

NO TEXT



SECTION 01 81 13.13
VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13.13

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes requirements for volatile organic compound (VOC) content in adhesives, sealants, paints and coatings used for the project.
- B. All sections in the Project Specifications with adhesives, sealant or sealant primer applications, paints and coatings shall follow all requirements of this section. In the event of any conflict or inconsistency between this section and the Specifications regarding adhesives, sealant or sealant applications, paints and coatings, the requirements set forth in this Section shall prevail.
- C. This Section includes:
1. General Requirements
 2. References
 3. VOC Requirements for Interior Adhesives
 4. VOC Requirements for Interior Sealants
 5. VOC requirements for Interior Paints
 6. VOC requirements for Interior Coatings
 7. Submittals

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION |
| D. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| E. | Section 01 73 00 | EXECUTION |
| F. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| G. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |
| H. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS |
| I. | Section 01 81 19 | INDOOR AIR QUALITY FOR LEED BUILDINGS |

1.4 DEFINITIONS:

- A. **ADHESIVE:** Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers.
1. **Aerosol Adhesive:** Any adhesive packaged as an aerosol with a spray mechanism permanently housed in a non-refillable can designed for hand-held application without the need for ancillary equipment.
- B. **CARCINOGEN:** A chemical listed as a known, probable, reasonably anticipated, or possible human

VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,
SEALANTS, PAINTS & COATINGS FOR LEED BUILDINGS



carcinogen by the International Agency for Research on Cancer (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA).

- C. **CLEAR WOOD FINISH:** Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film.
1. **Lacquer:** Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film.
 2. **Sanding Sealer:** A sanding sealer that also meets the definition of a lacquer.
 3. **Varnish:** Clear/semi-transparent coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. May contain small amounts of pigment.
- D. **COATING:** Liquid, liquefiable, or mastic composition that is converted to a solid adherent film after application to a substrate as a thin layer; and is used for decorating, protecting, identifying or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics; and is intended for on-site application to interior or exterior surfaces of buildings. Does not include stains, clear finishes, recycled latex paint, specialty (industrial, marine or automotive) coatings or paint sold in aerosol cans.
- E. **FLOOR COATING:** Opaque coating applied to flooring. Excludes industrial maintenance coatings.
- F. **HAZARDOUS AIR POLLUTANT:** Any compound listed by the U.S. EPA in the Clean Air Act Section 112(b)(1) as a hazardous air pollutant.
- G. **MUTAGEN:** A chemical that meets the criteria for category 1, chemicals known to induce heritable mutations or to be regarding as if they induce heritable mutations in the germ cells of humans, under the Harmonized System for the Classification of Chemicals Which Cause Mutations in Germ Cells (United Nations Economic Commission for Europe, Globally Harmonized System of Classification and Labeling of Chemicals).
- H. **OZONE-DEPLETING COMPOUNDS:** A compound with an ozone-depletion potential greater than 0.1 (CFC 11=1) according to the U.S. EPA list of Class I and Class II Ozone-Depleting Substances.
- I. **PAINT:** A pigmented coating. For the purposes of this specification, paint primers are considered to be paints.
1. **Flat Coating or Paint:** Has a gloss of less than 15 (using an 85-degree meter) or less than 5 (using a 60-degree meter).
 2. **Non-Flat Coating or Paint:** Has a gloss of greater than or equal to 15 (using an 85-degree meter) or greater than or equal to 5 (using a 60-degree meter).
 3. **Non-Flat High-Gloss Coating or Paint:** Has a gloss of greater than or equal to 70 (using a 60-degree meter).
 4. **Anti-Corrosive / Rust Preventative Paint:** Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates.
- J. **PRIMER:** Coating that is formulated and recommended for one or more of the following purposes: to provide a firm bond between the substrate and a subsequent coating; to prevent a subsequent coating from being absorbed into the substrate; to prevent harm to a subsequent coating from materials in the substrate; or to provide a smooth surface for application of a subsequent coating.
- K. **REPRODUCTIVE TOXIN:** A chemical listed as a reproductive toxin (including developmental, female, and male toxins) by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. Seq.).
- L. **SANDING SEALER:** Clear/semi-transparent coating formulated to seal bare wood. Can be abraded to create a smooth surface for subsequent coatings. Does not include sanding sealers that are lacquers (see Clear Wood Finish above).
- M. **SEALANT:** Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints



between surfaces. Includes sealant primers and caulks.

- N. SHELLAC: Clear or pigmented coating formulated solely with the resinous secretions of the lac beetle, thinned with alcohol and formulated to dry by evaporation without chemical reaction. Excludes floor applications.
- O. STAIN: Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
- P. VOLATILE AROMATIC COMPOUND: Any hydrocarbon compound containing one or more 6-carbone benzene rings, and having an initial boiling point less than or equal to 280 degrees Celsius measured at standard conditions of temperature and pressure.
- Q. VOLATILE ORGANIC COMPOUND: Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.
- R. WATERPROOFING SEALER: A coating that prevents the penetration of water into porous substrates.

1.5 GENERAL REQUIREMENTS:

- A. The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED Green building rating. Specific project requirements related to this goal which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated environmental goals.

1.6 REFERENCES:

- A. Rule 1168 – “Adhesive and Sealant Applications”, amended 7 January 2005): South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
- B. Rule 1113 - “Architectural Coatings”, amended 9 July 2004: South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
- C. Green Seal Standard GS-11- “Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org
- D. Green Seal Standard GC-03- “Anti-Corrosive Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org

1.6 VOC REQUIREMENTS FOR INTERIOR ADHESIVES, SEALANTS, PAINTS AND COATINGS:

- A. GENERAL: Unless otherwise specified herein, the VOC content of all interior adhesives, sealants, paints and coatings (herein referred to as “products”) shall not be in excess of **250 grams per liter**.
- B. No product shall contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioaccumulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception shall be made for titanium dioxide and, for products that are pre-tinted by the manufacturer, carbon black, which shall be less than or equal to 1% by weight of the product.
- C. No product shall contain the following:
 - 1. methylene chloride
 - 2. 1,1,1-trichloroethane
 - 3. benzene



4. toluene
5. ethylbenzene
6. vinyl chloride
7. naphthalene
8. 1,2-dichlorobenzene
9. di (2-ethylhexyl) phthalate
10. butyl benzyl phthalate
11. di-n-butyl phthalate
12. di-n-octyl phthalate
13. diethyl phthalate
14. dimethyl phthalate
15. isophorone
16. antimony
17. cadmium
18. hexavalent chromium
19. lead
20. mercury
21. formaldehyde
22. methyl ethyl ketone
23. methyl isobutyl ketone
24. acrolein
25. acrylonitrile

D. No product shall contain more than 1.0% by weight of sum total of volatile aromatic compounds.

1.8 VOC REQUIREMENTS FOR INTERIOR ADHESIVES:

- A. The volatile organic compound (VOC) content of adhesives, adhesive bonding primers, or adhesive primers used in this project shall not exceed the limits defined in Rule 1168 – "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
- C. For specified building construction related applications, the allowable VOC content is as follows:

1. Architectural Applications:	
a. Indoor carpet adhesive	50
b. Carpet pad adhesive	50
c. Wood flooring adhesive	100
d. Rubber floor adhesive	60
e. Subfloor adhesive	50
f. Ceramic tile adhesive	65
g. VCT and asphalt tile adhesive	50
h. Drywall and panel adhesive	50
i. Cove base adhesive	50
j. Multipurpose construction adhesive	70
k. Structural glazing adhesive	100
2. Specialty Applications:	
a. PVC welding	510
b. CPVC welding	490
c. ABS welding	325
d. Plastic cement welding	250

VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,
SEALANTS, PAINTS & COATINGS FOR LEED BUILDINGS



- | | | |
|----|--|-----|
| e. | Adhesive primer for plastic | 550 |
| f. | Contact Adhesive | 80 |
| g. | Special Purpose Contact Adhesive | 250 |
| h. | Structural Wood Member Adhesive | 140 |
| i. | Sheet Applied Rubber Lining Operations | 850 |
| j. | Top and Trim Adhesive | 250 |
3. Substrate Specific Applications:
- | | | |
|----|-------------------------------|----|
| a. | Metal to metal | 30 |
| b. | Plastic foams | 50 |
| c. | Porous material (except wood) | 50 |
| d. | Wood | 30 |
| e. | Fiberglass | 80 |
4. Aerosol Adhesives:
- | | | |
|----|---|---------------------|
| a. | General purpose mist spray | 65% VOC's by weight |
| b. | General purpose web spray | 55% VOC's by weight |
| c. | Special purpose aerosol adhesives (all types) | 70% VOC's by weight |

1.9 VOC REQUIREMENTS FOR INTERIOR SEALANTS:

- A. The volatile organic compound (VOC) content of sealants, or sealant primers used in this project shall not exceed the limits defined in Rule 1168 – "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
1. Sealants:
- | | | |
|----|--------------------------|-----|
| a. | Architectural | 250 |
| b. | Non-membrane roof | 300 |
| c. | Roadway | 250 |
| d. | Single-ply roof membrane | 450 |
| e. | Other | 420 |
2. Sealant Primer:
- | | | |
|----|---------------------------|-----|
| a. | Architectural – Nonporous | 250 |
| b. | Architectural – Porous | 775 |
| c. | Other | 750 |

1.10 VOC REQUIREMENTS FOR INTERIOR PAINTS:

- A. Paints and Primers: Paints and primers used in non-specialized interior applications (i.e., for wallboard, plaster, wood, metal doors and frames, etc.) shall meet the VOC limitations of the Green Seal Paint Standard GS-11, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:
5. Volatile Organic Compounds:
- a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U.S. Environmental Protection Agency (EPA) Reference Test Method 24.

Interior Paints and Primers:

Non-flat: 150 g/l

Flat: 50 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.



- B. **Anti-Corrosive and Anti-Rust Paints:** Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates shall meet the VOC limitations of the Green Seal Paint Standard GC-03, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:
1. Volatile Organic Compounds:

- a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.

Anti-Corrosive and Anti-Rust Paints: 250 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.

1.11 VOC REQUIREMENTS FOR INTERIOR COATINGS:

- A. Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to the interior shall meet the VOC limitations defined in Rule 1113, "Architectural Coatings" of SCAQMD, of the State of California. The VOC limits defined by SCAQMD, based on 7/9/04 amendments, are as follows. VOC limits are defined in grams per liter, less water and less exempt compounds.

1. Clear Wood Finishes:	
a. Varnish	350
b. Sanding Sealers	350
c. Lacquer	550
2. Shellac:	
a. Clear	730
b. Pigmented	550
3. Stains	250
4. Floor Coatings	100
5. Waterproofing Sealers	250
6. Sanding Sealers	275
7. Other Sealers	200

The calculation of VOC shall exclude water and tinting color added at the point of sale.

1.12 SUBMITTALS:

- A. Submit Material Safety Data Sheets, for all applicable products in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings. Material Safety Data Sheets shall indicate the Volatile Organic Compound (VOC) limits of products submitted. (If an MSDS does not include a product's VOC limits, then product data sheets, manufacturer literature, or a letter of certification from the manufacturer can be submitted in addition to the MSDS to indicate the VOC limits).
- B. Submit Environmental Building Materials Certification Form (EBMCF) as referenced in Section 01 81 13 SUSTAINABLE REQUIREMENTS FOR LEED BUILDINGS: For each field-applied adhesive, sealant, paint, and coating product, provide the VOC requirement, as provided in this Specification, for the relevant material category indicated on the documentation noted above.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 13.13



**SECTION 01 81 19
INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS**

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 19

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 CONSTRUCTION IAQ MANAGEMENT GOALS FOR THE PROJECT:

- A. The City of New York has determined that this Project shall minimize the detrimental impacts on Indoor Air Quality (IAQ) resulting from construction activities. Factors that contaminate indoor air, such as dust entering HVAC systems and ductwork, improper storage of materials on-site, poor housekeeping, shall be minimized.

1.3 RELATED SECTIONS:

- A. All sections of the Specifications related to interior construction, MEP systems, and items affecting indoor air quality.
- B. Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS
- C. Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS.
- D. Division 9 (of the Specifications): Finishes.

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products, including solvents in paints, coatings, adhesives and sealants, wood preservatives, composite wood binder, and foam insulations. Not all VOC's are harmful, but many of those contained within building products contribute to the formation of smog and may irritate building occupants by their smell and/or health impact.

- D. Materials that act as “sinks” for VOC contamination: Absorptive materials, typically dry and soft materials (such as textiles, carpeting, acoustical ceiling tiles and gypsum board) that readily absorb VOC’s emitted by “source” materials and release them over a prolonged period of time.
- E. Materials that act as “sources” for VOC contamination: Products with high VOC contents that emit VOC’s either rapidly during application and curing (typically “wet” products, such as paints, sealants, adhesives, caulks and sealers) or over a prolonged period (typically “dry” products such as flooring coverings with plasticizers and engineered wood with formaldehyde).

1.5 REFERENCES, RESOURCES:

- A. “IAQ Guidelines for Occupied Buildings Under Construction”, First Edition, November 1995, The Sheet Metal and Air Conditioner Contractors National Association (SMACNA). (703) 803-2980, www.smacna.org.
- B. ANSI/ASHRAE 52.2-1999, “Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size”, www.ashrae.org

1.6 LEED BUILDING GENERAL REQUIREMENTS:

- A. Implement practices and procedures as necessary to meet the project’s environmental performance goals as set forth in the specific requirements of this section. Specific project goals that may impact this area of work include: use of recycled-content materials; use of low-emitting materials; construction waste recycling; and the implementation of a construction indoor air quality management plan. Ensure that the requirements related to these goals, as defined in this Section, are implemented to the fullest extent. Substitutions or other changes to the work shall not be allowed if such changes compromise the stated LEED BUILDING Performance Criteria.

1.7 CONSTRUCTION IAQ MANAGEMENT PLAN :

- A. The Contractor shall prepare a Construction IAQ Management Plan in coordination with each subcontractor and submit the IAQ Management Plan to the Commissioner for approval in accordance with Section 01 33 00, SUBMITTAL PROCEDURE. The Construction IAQ Management Plan shall meet the following criteria:
 - 1. Construction activities shall be planned to meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors’ Association (SMACNA) “IAQ Guidelines for Occupied Buildings under Construction”, First Edition, 1995.
 - 2. Absorptive materials shall be protected from moisture damage when stored on-site and after installation.
 - 3. If air handlers are to be used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 52.2-1999.
 - 4. Filtration media shall be replaced immediately prior to occupancy. Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13 as determined by ASHRAE 52.2-1999 if the project is pursuing Indoor Air Quality Credit 5: Indoor Chemical Pollutant Source Control.
 - 5. A “Sequence of Finish Installation Plan” shall be developed, highlighting measures to reduce the absorption of VOCs by materials that act as “sinks”.
 - 6. Upon approval of the Plan by the Commissioner, it shall be implemented by the Contractor through the duration of the construction process, and documented in accordance with the Submittal Requirements of Sub-Section 1.8 herein.



B. Further description of the Construction IAQ Management Plan requirements is as follows:

1. SMACNA Guidelines: Chapter 3 of the referenced "IAQ Guidelines for Occupied Buildings Under Construction", outline IAQ measures in five categories as listed below. The Construction IAQ Management Plan shall be organized in accordance with the SMACNA format, and shall address measures to be implemented in each of the five categories (including subsections). All subsections shall be listed in the Plan; items that are not applicable for this project should be listed as such.
 - a. HVAC Protection
 - 1) Protect air handling and distribution equipment and air supply and return ducting during construction.
 - 2) All ductwork arriving on site will be sealed with plastic sheeting and stored on pallets or dunnage until installed.
 - 3) Cover and protect all exposed air inlets and outlets, openings, grilles, ducts, plenums, etc. to prevent water, moisture, dust and other contaminant intrusion.
 - 4) Apply protection immediately after ducting.
 - 5) Protect ducting runs at the end of day's work.
 - 6) Inspect temporary filtration weekly and replace as required to maintain the proper ventilation rates in the building.
 - b. Source Control
 - 1) Protect stored on-site or installed absorptive or porous materials.
 - 2) Do not use wet or damaged porous materials in the building.
 - 3) Recover, isolate, and ventilate containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications.
 - 4) Exhaust fumes from idling vehicles and gasoline fueled tools through use of funnels or temporary piping.
 - 5) Containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, shall be closed when not in use.
 - c. Pathway Interruption
 - 1) Depressurize work areas to contain dust and odors.
 - 2) Pressurize occupied spaces to prevent intrusion of dust and odors.
 - 3) Erect barriers to contain construction areas.
 - 4) Relocate pollutant sources.
 - 5) Temporarily seal the building and provide 100% outside air for ventilation.
 - d. Housekeeping
 - 1) Store materials on elevated platforms under cover, in a designated dry, clean location, prior to unpacking for installation.
 - 2) If materials are not stored in an enclosed location, cover tops and sides of material with waterproof sheeting, securely tied.
 - 3) Institute cleaning activities to remove contaminants from the building prior to occupancy. Clean all coils, air filters, and ductwork prior to performing testing, adjusting, and balancing of HVAC systems.
 - 4) Sweep the work area on a daily basis. Use an efficient and effective dust collecting method such as damp cloth, wet mop, or vacuum with particulate filters. Activities which produce high levels of dust shall be cleaned up immediately upon completion.
 - 5) Spills or excess applications of products containing solvents, or with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, must be removed immediately.
 - 6) Dust all walls prior to application of finishes.
 - 7) Vacuum all stud tracks prior to application of insulation.
 - 8) Materials which become contaminated through direct exposure to moisture from



- precipitation, plumbing leaks, or condensation shall be replaced by the Contractor.
- e. Scheduling
- 1) Phase construction such that absorptive materials are installed only in areas that are weathertight.
 - 2) Schedule activities that utilize "sources" of VOC contamination to take place prior to installing high absorbent materials that will act as "sinks" for contaminants.
 - 3) Review of the appropriate components of the Construction IAQ Management Plan shall be a regular action topic at weekly site coordination meetings. Implementation of the Plan shall be documented in the meeting minutes.
2. Protection of Materials from Moisture Damage: As part of the "Housekeeping" section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage shall be described. This section should also describe measures to be taken if moisture damage does occur to absorptive materials during the course of construction.
3. Replacement of Filtration Media: Under the "HVAC Protection" section of the Construction IAQ Management Plan, a description of the filtration media in all ventilation equipment shall be provided. The description shall include replacement criteria for filtration media during construction, and confirmation of filtration media replacement for all equipment immediately prior to occupancy.
4. Sequence of Finish Installation for Materials: Where feasible, absorptive materials shall be installed after the installation of materials or finishes which have high short-term emissions of VOC's, formaldehyde, particulates, or other air-borne compounds. Absorptive materials include, but are not limited to: carpets; acoustical ceiling panels; fabric wall coverings; insulations (exposed to the airstream); upholstered furnishings; and other woven, fibrous or porous materials. Materials with high short-term emissions include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paints, wood preservatives and finishes; control and/or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.
5. Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phase as follows:

OPTION 1 — Flush-Out

- After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60%.

OR

- If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 cu.ft. of outdoor air per sq.ft. of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space.

OR



OPTION 2 — Air Testing

- Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the United States Environmental Protection Agency Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED-NC Reference Guide.
- Demonstrate that the contaminant maximum concentrations listed below are not exceeded.

CONTAMINANT	MAXIMUM CONCENTRATION
Formaldehyde	27 parts per billion
Particulates (PM10)	50 micrograms per cubic meter
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
* 4-Phenylcyclohexene (4-PCH)	6.5 micrograms per cubic meter
Carbon Monoxide (CO)	9 part per million and no greater than 2 parts per million above outdoor levels
* This test is only required if carpets and fabrics with styrene butadiene rubber (SBR) latex backing material are installed as part of the base building systems.	

- For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting non-complying building areas, take samples from the same locations as in the first test.
- The air sample testing shall be conducted as follows:
 - a. All measurements shall be conducted prior to occupancy, but during normal occupied hours and with the building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.
 - b. The building shall have all interior finishes installed, including but not limited to millwork, doors, paint, carpet and acoustic tiles. Non-fixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing.
 - c. The number of sampling locations will vary depending upon the size of the building and number of ventilation systems. For each portion of the building served by a separate ventilation system, the number of sampling points shall not be less than one per 25,000 sq.ft., or for each contiguous floor area, whichever is larger, and include areas with the least ventilation and greatest presumed source strength.
 - d. Air samples shall be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum 4-hour period.
- 6. Implementation and Coordination: Implement the Construction IAQ Management Plan, and coordinate the Plan with all affected trades. Designate one individual as the Construction IAQ Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation. Include provisions in the Construction IAQ Management Plan for addressing conditions in the field that do not adhere to the Plan, including provisions to implement a stop work order, or to rectify non-compliant conditions.



- a. Distribution: The Contractor shall distribute copies of the Construction IAQ Management Plan in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- b. Instruction: The Contractor shall provide on-site instruction of appropriate site management to all Contractor's Subcontractors.
- c. Monitoring: The Construction IAQ Representative shall monitor the implementation of the Construction IAQ Management Plan.

1.8 SUBMITTALS:

Submit the following LEED-required records and documents in accordance with Section 01 33 00, SUBMITTAL PROCEDURES and Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS.

- A. A copy of the Construction IAQ Management Plan as defined in Sub-Section 1.07 herein.
- B. Product cut-sheets for all filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets shall be submitted with the Contactor's or Subcontractor's 'approved' stamp as confirmation that the products are the products installed on the project.
- C. Provide the Commissioner with a minimum of 18 photographs as required under the provision for Special Photographs, in accordance with Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION, comprised of at least six photographs taken on three different occasions during construction. The photographs shall document the implementation of the Construction IAQ Management Plan throughout the course of the project construction. Examples include photographs of ductwork sealing and protection, temporary ventilation measures, and conditions of on-site materials storage (to prevent moisture damage). Photographs shall include integral date stamping, and shall be submitted with brief descriptions of the Construction IAQ Management Plan measure documented, or be referenced to project meeting minutes or similar project documents which reference to the Construction IAQ Management Plan measure documented.
- D. A copy of the project's TAQ Testing report if applicable.

1.9 QUALITY ASSURANCE:

- A. The Contractor shall be responsible for preparing and implementing the Construction IAQ Management Plan and shall coordinate and incorporate the work of its subcontractors in the IAQ Management Plan.
- B. Responsibility of Subcontractors: Subcontractors for this project shall be responsible to cooperate with the Contractor in the preparation and implementation of the Construction IAQ Management Plan.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 19



SECTION 01 91 13
GENERAL COMMISSIONING REQUIREMENTS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 91 13

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. OPR and BoD documentation are included by reference for information only.
- C. The Commissioning Plan, prepared by the Commissioning Agent (CxA) under separate contract with the City of New York, contains requirements that apply to this section.

1.2 SUMMARY:

- A. This Section includes general requirements that apply to implementation of Commissioning without regard to systems, subsystems, and equipment being commissioned.
- B. This Section includes:
 - 1. Definitions
 - 2. Commissioning Team
 - 3. City's Responsibilities
 - 4. Each Contractor's Responsibilities
 - 5. Commissioning Authority's/Agent's (CxA) Responsibilities
 - 6. Commissioning Documentation
 - 7. Submittals
 - 8. Coordination

1.3 RELATED SECTIONS: Include without limitation the following:

- A. "HVAC Commissioning Requirements" indicated in other sections of the project specifications for specific requirements for commissioning HVAC systems.
- B. This project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor shall cooperate with the CxA and provide whatever assistance is required.
- C. Related Sections include without limitation the following:
 - 1. Section 01 10 00 SUMMARY
 - 2. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
 - 3. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
 - 4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
 - 5. Section 01 79 00 DEMONSTRATION AND TRAINING
 - 6. Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.



- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Commissioner: The Commissioner of the Department of Design and Construction of the City of New York, his/her successors, or duly authorized representative(s).
- D. BoD: Basis of Design: A document, prepared by the Consultant Architect/Engineer, that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- E. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
- F. CxA: Commissioning Agent (Aka Commissioning Authority) under separate contract with the City of New York to provide Commissioning Services for this project.
- G. OPR: Owner's (City of New York) Project Requirements: A document, prepared by the Consulting Architect/Engineer) that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- H. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.
- I. TAB: Testing, Adjusting, and Balancing.

1.5 COMMISSIONING TEAM:

- A. Members Appointed by the Contractor and its Subcontractors: Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated actions. The commissioning team shall consist of, but not be limited to, representatives of the Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members Appointed by the City:
 - 1. Commissioning Authority/Agent (CxA): The designated person, company, or entity under separate contract with the City that plans, schedules, and coordinates the commissioning team to implement the commissioning process.
 - 2. Representatives of the facility user and operation and maintenance personnel.
 - 3. Consultant Architect/Engineer and other concerned entities.

1.6 CITY'S RESPONSIBILITIES:

- A. Provide the OPR documentation to the Commissioning Agent (CxA) for use in developing the commissioning plan; systems manual; operation and maintenance training plan; and testing plans and checklists.
- B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.



- C. Provide the BoD documents, prepared by the Consulting Architect/Engineer and approved by the Commissioner, to the Commissioning Agent (CxA) for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.7 CONTRACTOR'S RESPONSIBILITIES:

- A. The Contractor shall provide utility services required for the commissioning process.
- B. As a member of the Commissioning Team, the Contractor and subcontractor(s) shall assign representatives with expertise and authority to act on behalf of the Contractor and its subcontractor(s) and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
 1. Participate in scheduled construction-phase coordination and commissioning team meetings.
 2. Integrate and coordinate commissioning process activities with the construction schedule.
 3. Review and accept commissioning process test procedures provided by the CxA.
 4. Review and accept construction checklists provided by the CxA.
 5. Perform testing required in the Commissioning Schedule as per the Commissioning Process test procedures provided by the CxA.
 6. Complete installation checklists as Work is completed and return to CxA through the Resident Engineer.
 7. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
 8. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
 9. Submit As-Built documents, operation and maintenance manuals for systems and subsystems, and equipment in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS.
 10. Provide orientation sessions for operation and maintenance personnel (sessions will be video recorded by the CxA) in accordance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

1.8 COMMISSIONING AGENT'S (CxA) RESPONSIBILITIES:

- A. Organize and lead the commissioning team.
- B. Prepare a construction-phase commissioning plan. Collaborate through the Resident Engineer with each Contractor and with subcontractors to develop test and inspection procedures. Include design changes and coordinate commissioning activities with the overall Project schedule. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.
- C. Review and comment in accordance with Section 01 33 00, SUBMITTAL PROCEDURES, on submittals from the Contractor for compliance with the OPR, BoD, Contract Documents, and construction-phase commissioning plan. Review and comment on performance expectations of systems and equipment and interface between systems relating to the OPR and BoD.
- D. Coordinate with the Resident Engineer to convene commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. Responsibilities include arranging for facilities, preparing agenda and attendance lists, and notifying participants. The Commissioning Agent CxA will prepare and distribute minutes to commissioning team members and attendees within three workdays of the commissioning meeting.
- E. At the beginning of the construction phase, coordinate with the Resident Engineer's kick-off meeting schedule to conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for operation and maintenance submittals, operation and maintenance training sessions, TAB Work, and Project completion.



- F. Observe and inspect construction. Report progress and deficiencies to the Commissioner. In addition to compliance with the OPR, BoD, and Contract Documents, inspect systems and equipment installation for adequate accessibility required for component maintenance replacement and repair.
- G. Prepare Project-specific test and inspection procedures and checklists.
- H. Coordinate with the Resident Engineer to schedule, direct, witness, and document tests, inspections, and systems startup.
- I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.
- J. Certify date of acceptance and startup for each item of equipment for start of warranty periods.
- K. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BoD, and Contract Documents. Operation and maintenance documentation requirements are specified in other sections of the project specifications and described in Section 01 78 39, CONTRACT RECORD DOCUMENTS.
- L. Record and edit demonstration and orientation sessions on DVD.
- M. Prepare commissioning reports.
- N. Assemble the final commissioning documentation, including the commissioning report and Systems Manual.

1.9 COMMISSIONING DOCUMENTATION:

The Contractor shall assist the Commissioning Agent (CxA) in the development and compiling of the following Commissioning Documentation:

- A. Index of Commissioning Documents: The Commissioning Agent (CxA) will prepare an index including the storage location of each document.
- B. OPR: A written document prepared by the Commissioning Agent (CxA) that details the functional requirements of the Project and expectations of how it will be used and operated. This document includes the Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.
- C. BoD Document: A document prepared by the Consulting Architect/Engineer that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that explain the designed systems.
- D. Commissioning Plan: A document prepared by the Commissioning Agent (CxA) that outlines the schedule, allocation of resources, and documentation requirements of the commissioning process.
- E. Test Checklists: The Commissioning Agent (CxA) will develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. The CxA will prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Space will be provided for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in other sections of the project specifications.
- F. Inspection Checklists will be signed by the Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing.
- G. Test and Inspection Reports: The Commissioning Agent (CxA) will record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application will be included with data. CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and commissioning report.



- H. Corrective Action Documents: The Commissioning Agent (CxA) will document corrective action taken for systems and equipment that fail tests and include required modifications to systems and equipment and revisions to test procedures, if any. The Contractor shall retest systems and equipment requiring corrective action. The CxA will document retest results.
- I. Issues Log: The Commissioning Agent (CxA) will prepare and maintain an issues log that describes design, installation, and performance issues that are at variance with the OPR, BoD, and Contract Documents. The log will identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.
 - 1. Commissioning Report: The Commissioning Agent (CxA) will document results of the commissioning process including unresolved issues and performance of systems, subsystems, and equipment. The commissioning report will indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD, and Contract Documents.
- J. Systems Manual: The Commissioning Agent (CxA) will gather required information and compile systems manual as specified in other sections of the project specifications and described in Section 01 78 39, CONTRACT RECORD DOCUMENTS..

1.10 SUBMITTALS:

- A. Commissioning Plan Pre-final Submittal: The Commissioning Agent (CxA) will submit six (6) copies of the pre-final commissioning plan to the Commissioner for review and distribution.
- B. Commissioning Plan Final Submittal: The Commissioning Agent (CxA) will submit six (6) hard copies and electronically formatted information of the final commissioning plan to the Commissioner. The final submittal will address previous review comments.
- C. Test and Inspection Reports: CxA will submit test and inspection reports.
- D. Corrective Action Documents: CxA will submit corrective action documents.

1.11 COORDINATION:

- A. Coordinating Meetings: The Commissioning Agent (CxA) will coordinate with the Resident Engineer's regularly scheduled construction progress meetings to conduct coordination meetings of the commissioning team to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.
- B. Pre-testing Meetings: The Commissioning Agent (CxA) will coordinate with the Resident Engineer to conduct pretest meetings of the commissioning team to review startup reports, pretest inspection results, testing procedures, testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.
- C. Testing Coordination: The Commissioning Agent (CxA) will coordinate with the Resident Engineer the sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Coordinate schedule times with the Resident Engineer for tests, inspections, obtaining samples, and similar activities.
- D. Manufacturers' Field Services: The Commissioning Agent (CxA) will coordinate services of manufacturers' field services.

PART II – PRODUCTS (Not Used)



PART III – EXECUTION

3.1 OPERATION & MAINTENANCE MANUALS

- A. General
1. The CxA shall review the Operation & Maintenance manuals provided by the Contractor or subcontractors for completeness of the document. The review process shall verify that Operation & Maintenance instructions meet specifications and are included for all commissioned equipment furnished by the Contractor.
 2. Published literature shall be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.
 3. The Contractor shall incorporate the standard technical literature into system specific formats for this facility as designed and as actually installed. The resulting Operation & Maintenance information shall be system specific, concise, to the point and tailored specifically to this facility. The CxA shall review these documents as necessary for final corrections by the Contractor.
- B. The Operation & Maintenance Manual review and coordination efforts shall be completed prior to Owner orientation sessions, as these documents are to be utilized in the training sessions.
- C. System Operations Manual
1. The CxA shall prepare and deliver these documents with inputs from other agencies. The contractors will confirm the proper documents are onsite and readily available. Typically, the manual includes the following:
 - a. Commissioned systems single line diagrams (Mechanical, Electrical, Plumbing, and Building Management System (BMS) subcontractors).
 - b. As built sequences of operations, control drawings and original set points (Design Consultant and BMS subcontractor)
 - c. Operating instructions for integrated building systems (mechanical and BMS subcontractors).
 - d. Recommended schedule of maintenance requirements and frequency (subcontractors).
 - e. Recommended schedule for calibrating sensors and actuators (BMS subcontractor)

3.2 DEMONSTRATION AND INSTRUCTION

- A. The Contractor shall schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations shall be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio training aids onsite with equipment.
- B. The equipment vendors shall provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.
- C. For additional prescription pertinent to instruction, refer to other specific divisions for demonstration and instruction requirements.

3.3 WARRANTY REVIEW / SEASONAL TESTING

- A. The CxA will return upon the start of the new season (cooling or heating) after project completion to conduct performance tests that could not be performed due to ambient conditions. The seasonal testing will only be performed if unsuitable loads / conditions were unavailable during the performance testing stages (in other words; the requirement for testing is warranted).
- B. If agreed upon by facility, Seasonal Testing can also be used for the Warranty Review. During which the CxA will interview the occupants, maintenance staff, review the operation of the building, provide recommendations for installation and operational problems and document warranty and operational issues in the issues database.



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013
Revised - January 15, 2015

3.4 RECORD DRAWINGS

- A. The CxA shall review the as built contract documents to verify incorporation of both design changes and as built construction details. Discrepancies noted shall be corrected by the appropriate party.

END OF SECTION 01 91 13



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013
Revised - January 15, 2015

NO TEXT

GENERAL COMMISSIONING REQUIREMENTS
01 91 13 - 8



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Department of
Design and
Construction

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

30-30 THOMSON AVENUE
TELEPHONE (718) 391-1000

LONG ISLAND CITY, NEW YORK 11101-3045
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: CO290BCHJ-2



Department of Design and 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

**Bronx Hall of Justice Remediation- Bid
Package 2**

LOCATION: 265 East 161st Street
BOROUGH: Bronx 10456
CITY OF NEW YORK

Lanmark Group, Inc.
Contractor

Dated November 3, 20 16

Approved as to Form
Certified as to Legal Authority
[Signature]
Acting Corporation Counsel

Dated April 29, 20 16

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20 _____

[Signature]
4/29/16





Department of
Design and
Construction

PROJECT ID:

CO290BCHJ-2

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:

Bronx Hall of Justice Remediation-
Bid Package 2

LOCATION:
BOROUGH:
CITY OF NEW YORK

265 East 161st Street
Bronx 10456

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

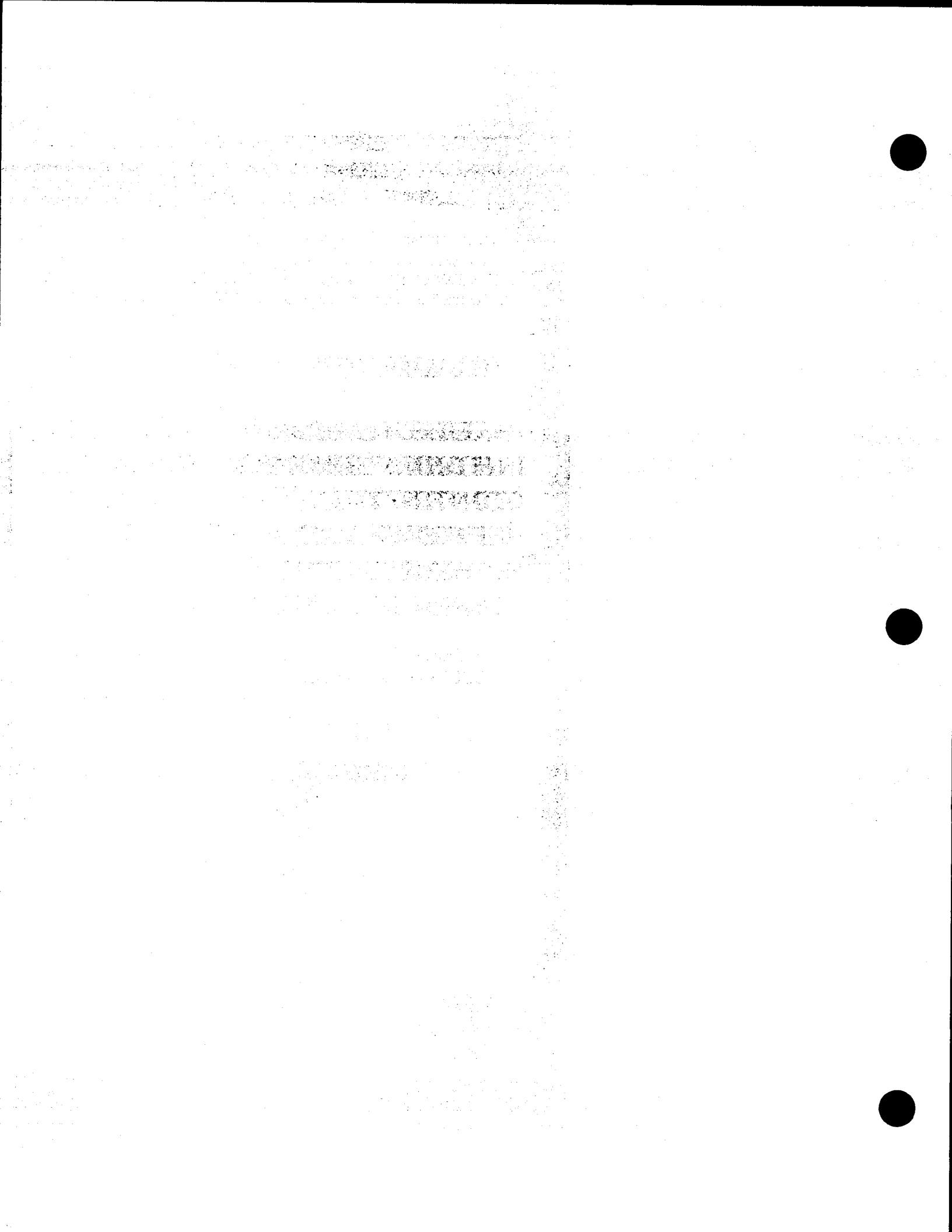
DGS

Rafael Vinoly Architects

Date: January 25, 2016



06-115





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

ADDENDUM TO THE GENERAL CONDITIONS
FOR SINGLE CONTRACT PROJECTS

The General Conditions are hereby amended in accordance
with the terms and conditions set forth in this Addendum.

I. PROJECT DESCRIPTION

FMS #: **CO290BCHJ-2**
PROJECT NAME: **Bronx Hall of Justice Remediation- Bid Package 2**
PROJECT DESCRIPTION: The work under this Contract is described below. The following is a general description only, and shall not be construed as a complete description of the work to be performed.

The Contractor is advised of the following unique conditions for this project:

1. Occupied Facility- The Bronx Hall of Justice is an occupied building which services the community with vital court functions. The Contractor must take all necessary precautions to protect the general public, employees, and occupants of the building, and shall perform all work in such a manner as to minimize disruption to facility operations.
2. Hours of Work- In general, in order to minimize facility disruptions, the contractor shall base his bid on performing all demolition and noise creating work off- hours (Monday through Friday: 6:00PM to 6:00AM and weekends/ holidays). While the Contractor may be able to perform certain work activities and layout during regular business hours, it is imperative the Contractor understand that there will be no additional compensation for performing work during off- hours. Any requests to perform work during regular business hours must be submitted no less than two (2) business days in advance and must be pre- approved by the Construction Manager.

The cost of overtime and/ or off- hour shifts required to perform the work of this contract shall be included in the base amount bid for the project.

3. Restoration of Work Areas- When the contractor performs work in an occupied area, he will be required to restore the work area back to their original condition at the end of each work shift. Work areas must be thoroughly cleaned and ready for use by the occupants at the end of each work shift. Any areas that the Contractor may require additional time to work in before full restoration must be reviewed and approved by the Commissioner in advance of commencing the work.
4. Coordination With Other Contractors- During the course of this project, the Contractor will be required to coordinate his work with the project Construction Manager, in order to avoid conflicts with the work of other Contractors who may also be on- site. The Contractor shall attend meetings as required to coordinate his work with the other Contractors.

The principal items of work for this contract are:

ITEM 2 – HVAC AIRFLOW ISSUES

1. Provide and install new transfer air fan and associated ductwork with sound attenuation in the inlet and outlet of fan serving Judge's lounge located at the 7th Floor. Provide VFD.
2. Provide and install transfer air ducts indicated on mechanical drawings for AHU-2, AHU-21, and AHU-28.
3. Relocate existing 18x6 toilet exhaust duct located in the 8th Floor. Demolish and re-route as shown on M-342.

4. Disconnect and remove existing feeder energizing AHU-2 motor and reenergize new motor as indicated on mechanical drawings.
5. Provide and install new water cooled AC units located at offices at B-1 Level and Room 804 on the 8th Floor. Provide new condensate drain line and condensate pump to discharge condensate to the nearest janitor's closet or floor drains.
6. Remove and replace fan section of AHU-2. Provide new VFD as required.
7. Remove existing relief duct with damper serving the flue shaft. Patch and seal tight existing discharge opening to the louver with similar panel material as required.
8. All wall, floor and ceiling openings shall be properly patched, sealed and firestopped to maintain the integrity of all required fire ratings. Match or "like new" as approved by the Commissioner.
9. Provide necessary controls required via BMS.
10. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM 3 – ENGINATOR EXHAUST

1. Install new exhaust and makeup air system to provide a mechanical means of heat removal from the shaft.
2. Field verify and seal off the opening to the existing shaft which houses the enginator exhaust flue. Seal shall be constructed with 2-hour fire rated materials
3. Provide new supply make-up air fan located in the mechanical room to serve the enginator shaft. The make-up air ductwork connecting from a gooseneck at the roof shall come down to the shaft at the 7th Floor level as a minimum.
4. Provide new exhaust fan with associated ductwork located at the 10th Floor mechanical room tying from the enginator shaft and discharging at the roof via gooseneck.
5. Provide new interface with existing base building fire alarm system duct smoke detector and fan shutdown relay.
6. Provide new fire smoke dampers where new ducts penetrate existing rated assemblies at 10th Floor penthouse.
7. Install spray-applied (or blown-in) cellulose insulation within the existing shaft wall C-H stud cavity on the 7th, 8th and 9th floors.
8. Repair fire stopping at existing penetrations, gaps and breaches in the shaft wall.
9. All wall, floor and ceiling openings shall be properly patched, sealed and firestopped to maintain the integrity of all required fire ratings. Repair damaged finishes. Match or "like new" as approved by the Commissioner.
10. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM 10 – CURTAINWALL SHADOW BOX HEAT TRANSFER

1. Refer to architectural drawings A-121 and A-123 for scope of work.
2. Remove existing GWB, metal studs and insulation at the interior of the curtain wall problem area.
3. Inspect and repair missing or damaged seals at interior of shadow box metal panels.
4. Install thermally isolated metal studs to support a new layer of gypsum board beyond the face of the mullion, and install new insulation.
5. Install aluminum framing at vision lights and mullions.
6. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM 11 – WATER PENETRATION THROUGH UNDERGROUND CONDUITS

1. Refer to Electrical drawings and Architectural drawing A-201 for scope of work.
2. Disconnect and remove existing failed feeder from panel DP-EM-1 located in Electrical Room B211 to existing panel splice box in Switch Gear Room B231.
3. Existing under slab conduit running from panel DP-EM-1 in Electrical Room B211 to Switch Gear Room B231 shall be abandoned in place and sealed to avoid water penetration.

4. Core drill wall between Corridor B2C1 and Staff Parking B212 for new conduit. Location to be coordinated around existing reinforcement bars.
5. Provide new feeder from Electrical Room B211 to Switch Gear Room B231 as indicated on drawing E-401.
6. Provide new splice box in Switch Gear Room B231 intercepting existing conduit and feeder up to panel EPP-10AC in the 10th Floor penthouse.
7. Megger test existing feeder before reusing. If existing feeder cannot be reused, provide new feeder in existing 3-1/2" conduit to 10th Floor Mechanical Room 100.
8. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM 13 – INTERIOR GLASS BREAKAGE

1. Refer to Architectural drawing A-125 for scope of work.
2. Remove the retrofit aluminum framing and Plexiglas.
3. Reglaze existing frames with tempered glass per specifications.
4. Field measurements should be made for each unit prior to fabrication. Trueness and squareness of the frame should be measured. The depth of the vertical glazing pocket shall be confirmed and all measurements compared to determine glass dimensions to assure that pocket re-glazing is possible.
5. Prior to re-glazing the glazing pockets should be thoroughly cleaned of silicone and broken glass, inspected and re-glazed with 1/2" thick tempered glass, glass should be heat soaked and comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.
6. Compliance with the recommendations of Glass Association of North America (GANA) "Glazing Manual" is required.
7. Contractor is to visit the site and discuss with the construction manager and building management the logistics of delivery and installation of the glass units. The building elevators may not be available for use due to glass size.
8. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM C – FIRE DAMPERS AND FIRE SMOKE DAMPERS

1. Refer to Mechanical drawings for scope of work.
2. Provide fire smoke damper in the return duct located at shaft wall in the 8th Floor.
3. Install an access door in the ductwork for FSD M-23A1.
4. All wall, floor and ceiling openings shall be properly patched, sealed and firestopped to maintain the integrity of all required fire ratings. Match or "like new" as approved by the Commissioner.
5. Repair architectural finishes.
6. Provide necessary controls required via BMS.
7. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM E – CONDENSER WATER SYSTEM WITH TWO DRY COOLERS

1. Remove existing pipe, valves, and associated gauges. Condenser water supply and return pipes are the only pipes to be demolished.
2. Cap existing pipe where indicated.
3. Remove existing water cooled valve trim and replace with new as noted on plan.
4. Procedure of deleting valve trim from existing water cooled AC units:
 - i. Drain and remove condenser water from the water cooled AC units and associated branch piping.
 - ii. Remove partial condenser water piping and valve trim from existing AC units as shown on plan.
 - iii. Cap existing CW piping to remain as shown on drawings.
 - iv. Flush out and clean AC unit cooling coils.
 - v. Install new valve trims as shown on plans.
5. Provide and install dry coolers mounted at east end and west end of the building at the roof.

6. Provide dunnage for dry coolers, and reinforce existing structural framing as indicated on Structural drawings. Repair and provide new fireproofing as required on structural steel.
7. Patch and repair existing roofing system around penetrations required for anchoring dunnage as indicated on Architectural drawing A-451.
8. Remove and reinstall lighting fixtures and gypsum wall board and acoustic tile ceilings impacted by installation of structural reinforcement of beams on Level 9.
9. The dry cooler system shall include piping, pumps, expansion tanks and controls.
10. The dry cooler system will provide condenser water to new supplemental water cooled AC units serving the office at the basement level, 8th Floor Room 804, and existing telecom closets and elevator machine rooms.
11. Provide condenser water valves and capped outlets for future connection at each riser per floor. Locations of valves and drains to be field verified.
12. Install access panels in rated and unrated ceilings where indicated for access to shutoff valves and capped outlets for future connection.
13. Route condenser water piping riser as shown in the drawings. Provide fire rated shaft wall assembly where indicated. Route new piping along demolished piping to minimize impact to existing ceiling finishes.
14. Core drill floor for new condenser water piping. Location to be coordinated around existing reinforcement bars.
15. All wall, floor and ceiling openings shall be properly patched, sealed and firestopped to maintain the integrity of all required fire ratings. Match or "like new" as approved by the Commissioner.
16. Provide necessary controls required via BMS.
17. Extend existing lightning protection system to new roof mounted dry coolers.
18. Work Hours:
 - a. No demolition or noise creating work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

ITEM F – REMOVAL OF EXCESS HEAT FROM COURTROOM AV CLOSETS

1. Install transfer fan system in AV Closets between courtrooms on Level 3 to 6 as indicated on M-800 and M-900.
2. Extend existing circuit to energize transfer fan and bus panel in AV close.
3. Remove existing hollow metal AV closet doors and replace with new hollow metal doors and hardware with aluminum louvers as indicated in existing framed openings.
4. Install ceiling where indicated and reroute sprinkler heads and heat sensors below finished ceiling.
5. Install ceiling access panels where indicated.
6. All wall and ceiling openings shall be properly patched, sealed and firestopped to maintain the integrity of all required fire ratings. Match or "like new" as approved by the Commissioner.
7. Repair architectural finishes.
8. Work Hours:
 - a. No work shall be performed while court functions are in operation (Monday through Friday, 8:00AM to 6:00PM)
 - b. The Contractor will be required to thoroughly clean the work areas and have them ready for use by the occupants at the end of each work shift.

LOGISTICS PLANS: The Contractor shall submit logistics plans for each work item listed above for review by the Commissioner prior to commencing work. Logistics plans shall include: Plan of work areas, means of separation of work area from non- work areas, protection of adjacent finishes, hours of work, phasing of work, schedule for work, egress restrictions and ventilation requirements.

The preceding Project description is a summary only and is therefore general in nature, and does not limit Contract Work as stipulated in other parts of the Contract Documents. Refer to every part of the Contract Documents for the total Work included, since the Contractor is responsible for every part of the Work indicated in their Contract Documents whether or not it is included in the following limited summary. The General Construction Contractor is responsible for all Work indicated in the Contract Documents.

PROJECT LOCATION: **265 East 161st Street**
 BOROUGH: **Bronx**
 CITY OF NEW YORK
 ZIP CODE: **10456**
 COMMUNITY BOARD #: **1**

LANDMARK STATUS:

DESIGNATED LANDMARK STRUCTURE OR SITE: NO
LANDMARK QUALITY STRUCTURE: NO

II. LEED GREEN BUILDING REQUIREMENTS

NOT USED

III. COMMISSIONING REQUIREMENTS

This project includes Commissioning Requirements. The General Commissioning Requirements are found in Section 01 9113 of the DDC Standard General Conditions. Other specific Commissioning Requirements can be found in the Project Specification Sections.

IV. PROJECT MANAGEMENT

- DDC shall publicly bid and enter into all contracts for the Project. DDC shall manage the Project using its own personnel.
- DDC shall publicly bid and enter into all contracts for the Project. A Construction Management firm (the "CM") hired by DDC shall manage the Project. The Contractor is advised that the CM shall serve as the representative of the Commissioner at the site and shall, subject to review by the Commissioner, be responsible for the inspection, management, coordination and administration of the required construction work, as delineated in the article of the Standard Construction Contract entitled "The Resident Engineer".

V. CONTRACTS FOR THE PROJECT

The Project consists of a single contract, the Contract for General Construction Work. The Contractor for General Construction Work is responsible for the performance of all required work for the Project as set forth in the Contract Documents (General Conditions, Drawings and Specifications), including all responsibilities and obligations assigned to separate Contractors for the following subdivisions of the work: Plumbing Work, HVAC Work, and Electrical Work. All responsibilities and obligations in the Contract Documents assigned to separate Contractors for such subdivisions of the work are the responsibility of the Contractor for General Construction Work.

VI. SCHEDULES

The Contractor is advised that Schedules A through F are attached to, and incorporated as part of, this Addendum to the General Conditions. These schedules contain important information that is specific to this Project. The Contractor is advised to carefully review these schedules.

VII. APPLICABILITY OF SECTIONS/SUB-SECTIONS AND AMENDED SUB-SECTIONS

The Contractor is advised that various Sections/Sub-Sections in the General Conditions may not apply to this Project or may apply as amended. Such Sections/Sub-Sections advise the Contractor to "Refer to the Addendum for the applicability of this Section/Sub-Section." Such Sections/Sub-Sections are set forth below. A check mark indicates whether the Section/Sub-Section (1) applies to the Project, (2) does not apply to the Project, or (3) applies to the Project as amended. If no box is checked, the Section/Sub-Section, as set forth in the General Conditions, applies to the Project. Amended Sections/Sub-Sections, if any, are set forth following this list of Sections.

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 1000	1.4 (B)	Scope and Intent / LEED		X	
	1.4(C)	Scope and Intent / Commissioning	X		
01 3233		Photographic Documentation	X		
01 3300	1.7 (A-D)	LEED Submittals		X	
01 3503		General Mechanical Requirements	X		
01 3506	3.2 (A-B)	Electrical Conduit System Including Boxes (Pull, Junction and Outlet)	X		
	3.3 (A-E)	Electrical Wiring Devices	X		
	3.4 (A-I)	Electrical Conductors and Terminations	X		
	3.5 (A-B)	Circuit Protective Devices	X		
	3.6 (A-J)	Distribution Centers	X		
	3.7 (A-I)	Motors	X		
	3.8 (A-I)	Motor Control Equipment	X		
01 3591		Historic Treatment Procedures		X	
01 5000	3.2 (A)	Temporary Water Facilities / Temporary Water	X		
	3.2 (B)	Temporary Water Facilities / Temporary Water – Work in Existing Facilities	X		
	3.3 (B)	Temporary Sanitary Facilities / Self-Contained Toilet Units	X		
	3.3 (C)	Temporary Sanitary Facilities / Existing Toilets	X		
	3.4 (B) 1	Temporary Power, Lighting, and Site Lighting / Connection to Utility Lines	X		
	3.4 (B) 2	Temporary Power, Lighting, and Site Lighting / Connection to Existing Electrical Power Service	X		
	3.4 (B) 3	Temporary Power, Lighting, and Site Lighting / Electrical Generator Power Service	X		
	3.4 (D)	Temporary Power, Lighting, and Site Lighting / Temporary Lighting	X		
	3.4 (E)	Temporary Power, Lighting, and Site Lighting / Site Security Lighting (for New Construction Only)	X		
	3.5 (A-J)	Temporary Heat	X		
	3.8 (A)	DDC Field Office / Office Space in Existing Building	X		
	3.8 (B)	DDC Field Office / DDC Field Office Trailer		X	
	3.8 (B-3a)	DDC Field Office / DDC Managed Field Office Trailer		X	
	3.8 (B-3b)	DDC Field Office / CM Managed Field Office Trailer		X	
	3.8 (D)	DDC Field Office / Additional Equipment for the DDC Field Office	X		
	3.13(A-D)	Work Fence Enclosure		X	
	3.17(B)	Project Rendering		X	
	3.18 (A-C)	Security Guards / Fire Guards on Site	X		

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 5411	3.1 (A-J)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Up To and Including 15 Stories		X	
	3.2 (A-M)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Over 15 Stories		X	
	3.3 (A-E)	Temporary Use, Operation and Maintenance of Elevators During Construction for Existing Buildings	X		
01 7300	3.3 (A-I)	Surveys	X		
	3.4 (A-B)	Borings	X		
	3.12 (A-D)	Sleeves and Hangers	X		
	3.13 (A)	Sleeve and Penetration Drawings	X		
	3.15 (A)	Location of Partitions	X		
01 7419	1.5 (C)	Waste Management Performance Requirements / LEED Certification		X	
01 7900		Demonstration and Owner's Pre-Acceptance Orientation	X		
01 8113		Sustainable Design Requirements for LEED Buildings		X	
01 8113.13		VOC Limits for Adhesives, Sealants, Paints and Coatings for LEED Buildings		X	
01 8119		Indoor Air Quality Requirements for LEED Buildings		X	
01 9113		General Commissioning Requirements			X

AMENDED SECTIONS/SUB-SECTIONS

The Contractor is advised that the amended Sub-Sections set forth below are included in the General Conditions and apply to the Project.

019113 General Commissioning Requirements: This project includes Commissioning to be done under the Contractor, rather than a Commissioning Agent. Refer to Specification Section 230810 *Basic Commissioning of HVAC Systems* for additional requirements.

VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

- (1) **GENERAL:** Special Experience Requirements for the Project are set forth below. Such Special Experience Requirements may apply to either or both of the following entities: (a) the contractor or subcontractor that will perform specific areas of work, and/or (b) 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 Requirements that are not set forth below, such Special Experience Requirements are 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 Special 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 any specific area of work with its own forces, it must demonstrate compliance with the Special Experience Requirements. If the contractor intends to subcontract any specific area 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 that will perform the specific areas of work specified above 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) **Special Experience Requirement #2:** For Section 075520 Modified Bituminous Roofing Repairs, the contractor or subcontractor performing the work of these sections must be a company regularly engaged in performing roofing projects with its own workforce and have successfully completed in a timely fashion at least three (3) roofing projects similar in scope, size and type to the required work within the last three (3) consecutive years prior to the bid opening. At least one of those projects must have been performed within the last twelve (12) months. The three (3) qualifying projects must have utilized one or more of the roofing systems specified for the project being bid herein, been installed by the contractor's or subcontractor's company utilizing its own workforce and must have qualified for, and have been issued, the warranty provided by the manufacturer of the roofing system. In addition, the contractor or subcontractor must be a certified or authorized installer for at least one of the manufacturer's roofing systems specified herein and shall submit proof of same.

General Construction Work:

- Section 057010: Decorative Metal
- Section 075520: Modified Bituminous Roofing Repairs
- Section 095113: Acoustical Panel Ceilings

- (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 #1:** 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.

General Construction Work:

- Section 057010: Decorative Metal

IX. REVISIONS: SPECIFICATIONS AND CONTRACT DRAWINGS

The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

- (1) Owner: Wherever the term "Owner" is used in the Specifications and/or the Contract Drawings, such term shall mean the City of New York.
- (2) Other Entities: In the event any entity other than the City of New York is referred to or named as the "Owner" in the Specifications and/or the Contract Drawings, the name of such other entity is deemed deleted and replaced with the "City of New York".
- (3) Architect / Engineer: Wherever the words "Architect", "Engineer", "Architect / Engineer" or "Architect and/or Engineer" are used in the Specifications and/or the Contract Drawings, such words are deemed deleted and replaced with the word "Commissioner".
- (4) Products / Manufacturers: Wherever the Specifications and/or the Contract Drawings require the contractor to provide a particular product (i.e., material and/or equipment) from a designated manufacturer and/or vendor, the term "or approved equal" is deemed inserted, even if only one product and/or manufacturer is specified, except as otherwise provided below.
 - (a) Proprietary Items: If the Bid Booklet contains a Notice which identifies a particular product from a designated manufacturer as a "Proprietary Item", the Contractor shall be required to provide such specified product. In such case, no substitution or "approved equal" will be permitted.
- (5) Special Experience Requirements: Special Experience Requirements for the Project, if any, are set forth in the Bid Booklet. Special Experience Requirements may apply to contractors, subcontractors, installers, manufacturers and/or suppliers. If the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth in the Bid Booklet, such Special Experience Requirement is deemed deleted, except as otherwise provided below.
 - (a) Any Special Experience Requirement that provides that the entity performing the work or supplying the material must have more than three (3) years of experience, is revised to provide that the entity performing the work or supplying the material must have three (3) years of experience, except as described in paragraph (b) below.
 - (b) Any Special Experience Requirement that pertains to the abatement of hazardous materials shall not be subject to the deletion and/or revision set forth above. Such Special Experience Requirement shall remain in full force and effect.
 - (c) Any Special Experience Requirement that provides that the entity performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such entity must be properly trained for the specified work.
 - (d) Any Special Experience Requirement that provides that the individual workers performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such individual workers must be properly trained for the specified work.
- (6) Alternate Bids: If the agency is requesting the submission of Alternate Bids, a Notice regarding such Alternate Bids is set forth in the Bid Booklet. In the event of any conflict or inconsistency between (1) the Notice regarding Alternate Bids set forth in the Bid Booklet and (2) a provision in the Specifications and/or the Contract Drawings regarding Alternate Bids, the Notice set forth in the Bid Booklet shall prevail. If the agency is not requesting the submission of Alternate Bids, as indicated by the absence of a Notice in the Bid Booklet, and the Specifications and/or the Contract Drawings contain any provision regarding Alternate Bids, such provision is deemed deleted.
- (7) Contractor Retained Engineer: If the Specifications and/or the Contract Drawings require the Contractor to retain an Engineer to provide engineering services for the Project, the following sentence is deemed inserted: "Such Engineer must be a Professional Engineer, licensed in the State of New York."

- (8) LEED Related Provisions: If the Specifications and/or the Contract Drawings require the Contractor to purchase FSC certified wood, rapidly renewable materials, or materials within 500 miles, such provisions are deemed deleted and replaced with the requirement that if the contractor has purchased FSC certified wood, rapidly renewable materials, or materials within 500 miles, the contractor shall submit such forms or documentation as may be required by the City in order for the USGBC to certify that the Project qualifies for the related LEED credit(s).
- (9) Guarantees: Requirements for Guarantees and Maintenance are set forth in Schedule B, which is included in the Addendum to the General Conditions. In the event of any conflict or inconsistency between (1) a guarantee and/or maintenance requirement set forth in the Specifications and/or the Contract Drawings and (2) a guarantee and/or maintenance requirement set forth in Schedule B, the guarantee and/or maintenance requirement set forth in Schedule B shall prevail.
- (10) Warranties: Requirements for Warranties are set forth in Schedule B, which is included in the Addendum to the General Conditions.
- (a) In the event of any conflict or inconsistency between (1) a warranty requirement set forth in the Specifications and/or the Contract Drawings and (2) a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall prevail.
- (b) In the event a warranty requirement set forth in the Specifications and/or the Contract Drawings is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications and/or the Contract Drawings, shall remain in full force and effect.
- (c) In the event a warranty requirement for a particular item of material or equipment is omitted from Schedule B, as well as from the Specifications or the Contract Drawings, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.
- (11) Exculpatory Provisions: In the event the Specifications and/or the Contract Drawings contain any provision whereby the consultant and/or any of its officers, employees or agents, including subconsultants, is absolved of responsibility for any act or omission, such provision is deemed deleted.
- (12) Insurance: Provisions regarding insurance coverage the Contractor is required to provide are set forth in Article 22 of the City of New York Standard Construction Contract and Schedule A, which is included in the Addendum to the General Conditions. In the event the Specifications and/or the Contract Drawings contain any provision regarding insurance requirements, such provision is deemed deleted.
- (13) Indemnification: Provisions regarding indemnification are set forth in Articles 7, 12, 22 and 57 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding indemnification, such provision is deemed deleted.
- (14) Dispute Resolution: Provisions regarding dispute resolution are set forth in Article 27 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding dispute resolution, such provision is deemed deleted.
- (15) Payment to Other Entities: In the event the Specifications and/or the Contract Drawings contain any provision which requires the Contractor to make payments to an entity other than a subcontractor and/or supplier providing services and/or material for the project, such provision is deemed deleted.
- (16) General Conditions: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the General Conditions, the General Conditions shall prevail.
- (17) Standard Construction Contract: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the City of New York Standard Construction Contract, the City of New York Standard Construction Contract shall prevail.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)
PART I - Contract Requirements

Various Articles of the Contract refer to requirements which are set forth in Schedule A of the General Conditions. The Schedule set forth below specifies the following: (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the contract.

REFERENCE	ITEM	REQUIREMENTS	CONTRACT #1
Information For Bidders	Bid Security		See Attachment 1 – Bid Information in the Bid Booklet
Information For Bidders	Performance and Payment Bonds		See Attachment 1- Bid Information in the Bid Booklet
Article 14 Contract	Time of Completion	Consecutive Calendar Days	730
Article 15 Contract	Liquidated Damages	For each consecutive calendar day over completion time	\$600
Article 17 Contract	Sub-Contracts	Not to exceed Percent of Contract Price	60%
Article 21 Contract	Retainage	Percent of Voucher	If 100% bonds are required 5% If 100% bonds are not required, and Contract Price is \$1,000,000 or less 5% If 100% bonds are not required, and Contract Price is more than \$1,000,000 10%
Article 24 Contract	Deposit Guarantee	Percent of Contract Price	1%
Article 24 Contract	Period of Guarantee		See Schedule B of the Addendum to the General Conditions
Article 74 Contract	Statement of Work		See Contract Article 74
Article 75 Contract	Compensation to be Paid to Contractor		See Contract Article 75
Article 78 Contract	MWBE Program		See M/WBE Utilization Plan in the Bid Booklet

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions

Note: All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:

- For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;
- Policy limits consistent with the requirements listed below;
- Additional insureds or loss payees consistent with the requirements listed below; and
- The number assigned to the Contract by the City (in the "Description of Operations" field).

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<p>■ Commercial General Liability Art. 22.1.1</p>	<p>The minimum limits shall be \$1,000,000.00 per occurrence and \$2,000,000.00 per project aggregate applicable to this Contract.</p> <p>Additional Insureds:</p> <p>1. City of New York, including its officials and employees, with coverage at least as broad as ISO Forms CG 20 10 and CG 20 37, and</p> <p>2. All person(s) or organization(s), if any, that Article 22.1.1(b) of the Contract requires to be named as Additional Insured(s), with coverage at least as broad as ISO Form CG 20 26. The Additional Insured endorsement shall either specify the entity's name, if known, or the entity's title (e.g., Project Manager).</p> <p>3. _____</p>
<p>■ Workers' Compensation Art. 22.1.2</p> <p>■ Disability Benefits Insurance Art. 22.1.2</p> <p>■ Employers' Liability Art. 22.1.2</p> <p><input type="checkbox"/> Jones Act Art. 22.1.3</p> <p><input type="checkbox"/> U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.3</p>	<p>Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction.</p> <p>Note: The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3, (3) New York State Workers' Compensation Board Form No. DB-120.1 and (3) Request for WC/DB Exemption Form No. CE-200. The City will not accept an ACORD form as proof of Workers' Compensation or Disability Insurance.</p> <p>Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. law.</p>

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input checked="" type="checkbox"/> Builders' Risk Art. 22.1.4	100 % of total value of Work Contractor the Named Insured; the City both an Additional Insured and one of the loss payees as its interests may appear. If the Work does not involve construction of a new building or gut renovation work, the Contractor may provide an installation floater in lieu of Builders Risk insurance. Note: Builders Risk Insurance may terminate upon Substantial Completion of the Work in its entirety.
<input checked="" type="checkbox"/> Commercial Auto Liability Art. 22.1.5	\$1,000,000.00 per accident combined single limit If vehicles are used for transporting hazardous materials, the Contractor shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90
<input type="checkbox"/> Contractor's Pollution Liability Art. 22.1.6	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Protection and Indemnity Art. 22.1.7(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 II. Types of Insurance, Minimum Limits and Special Conditions (Continued)

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input type="checkbox"/> Hull and Machinery Insurance Art. 22.1.7(b)	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Pollution Liability Art. 22.1.7(c)	\$ _____ each occurrence Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 <input type="checkbox"/> Ship Repairers Legal Liability	\$ _____ each occurrence
[OTHER] Art. 22.1.8 <input type="checkbox"/> Collision Liability/Towers Liability	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 <input type="checkbox"/> Railroad Protective Liability	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

<p>[OTHER] Art. 22.1.8</p> <p><input type="checkbox"/> Asbestos Liability _____</p>	<p>Only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>\$1,000,000 each occurrence, \$2,000,000 aggregate (Combined Single Limit); only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>Additional Insureds: 1. City of New York, including its officials and employees, and</p> <p>2. _____</p> <p>3. _____</p>
<p>[OTHER] Art. 22.1.8</p> <p><input type="checkbox"/> Boiler Insurance _____</p>	<p>\$200,000</p>
<p>[OTHER] Art. 22.1.8</p> <p>■ Professional Liability</p> <p>In the event any section of the Specifications requires the Contractor to engage a Professional Engineer to provide design and/or engineering services, the Engineer engaged by the Contractor, as well as any sub consultant(s) performing professional services, shall provide Professional Liability Insurance.</p>	<p>\$1,000,000 per occurrence</p> <p>The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of \$1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Agreement arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer.</p> <p>Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.</p>

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART III. Certificates of Insurance

All certificates of insurance (except certificates of insurance solely evidencing Workers' Compensation Insurance, Employer's Liability Insurance, and/or Disability Benefits Insurance) must be accompanied by one of the following:

- (1) the Certification by Insurance Broker or Agent on the following page setting forth the required information and signatures;

-- OR --

- (2) copies of all policies as certified by an authorized representative of the issuing insurance carrier that are referenced in such certificate of insurance. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART IV. Address of Commissioner

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth below or, in the absence of such address, to the **Commissioner's** address as provided elsewhere in this **Contract**.

ACCO's Office, Insurance Unit

30-30 Thomson Avenue, 4th Floor

Long Island City, New York 11101

SCHEDULE B

Guarantees and Warranties

(Reference: Section 01 7839, Article 2.7 of the DDC Standard General Conditions)

GUARANTY FROM CONTRACTOR

(1) **Contractor's Guaranty Obligation:** The Contractor shall promptly repair, replace, restore or rebuild, as the Commissioner may determine, any finished Work in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of Substantial Completion (or use and occupancy in accordance with the Contract), except for the areas of Work set forth below:

- Roofing, Waterproofing, and Joint Sealant Work. For these types of work, the guarantee period shall be (2) two years.
- Trees and/or Plant Material. For trees and/or plant material furnished and installed, the guarantee period shall be (2) two years. During the guarantee period, the Contractor shall provide all maintenance services set forth in the Specifications.

(2) **Guaranty Period:** The obligation of the Contractor, and its Surety under the Performance Bond, is limited to the period(s) of time specified above.

(3) **Other Provisions Deemed Deleted:** In the event the Specifications and/or the Contract Drawings contain any provisions regarding guaranty requirements, such provisions are deemed deleted and replaced with the guaranty requirements set forth in this Schedule B.

WARRANTY FROM MANUFACTURER

(1) **Contractor's Obligation to Provide Warranties:** The items of material and/or equipment for which manufacturer warranties are required are listed below. For each item of material and/or equipment listed below, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth below and will be replaced or repaired within such specified period. The Contractor shall deliver all required warranties to the Commissioner.

(2) **Required Warranties:**

Specification Number	Material or Equipment	Warranty Period
07 55 20	Modified Bituminous Roofing Repairs	10 years
07 81 10	Fireproofing Patching and Repairs	10 years
07 92 00	Joint Sealants	2 years
08 71 00	Door Hardware	10 years
08 88 11	Glass & Glazing Repairs	10 years
09 51 13	Acoustical Panel Ceilings	10 years
09 51 14	Security Ceilings	10 years
09 65 00	Resilient Flooring	5 years
09 91 00	Painting	2 years

(3) **Application:** The obligations under the warranty for the periods specified above shall apply only to the manufacturer of the material or equipment, and not to the Contractor or its Surety; provided, however, the Contractor retains responsibility for obtaining all required warranties from the manufacturers and delivering the same to the Commissioner.

(4) Other Provisions: The warranty requirements set forth in this Schedule B are also included in the Specifications.

- (a) In the event of any conflict between a warranty requirement set forth in the Specifications and a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall take precedence.
- (b) In the event a warranty requirement set forth in the Specifications is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications, shall remain in full force and effect
- (c) In the event a warranty requirement for a particular item of material or equipment is omitted from both Schedule B and the Specifications, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.
- (d) In the event a warranty requirement is provided for a particular item of material or equipment, and such requirement specifies a warranty period that is longer than that which is actually provided by any of the specified manufacturers, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by any of the specified manufacturers, unless otherwise directed in writing by the Commissioner.
- (e) Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.

SCHEDULE C
Contract Drawings

(Reference: Section 01 1000, Article 1.5 (A) of the DDC Standard General Conditions)

The Schedule set forth on the following pages lists all Contract Drawings for the Project:

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
T-001	COVER SHEET, TABLE OF CONTENTS
A-001	SYMBOLS, ABBREVIATIONS, NOTES
A-101	FLOOR PLAN-AREA 1/Level LL2/Sub-Cellar
A-102	FLOOR PLAN-AREA 2/Level LL2/Sub-Cellar
A-103	FLOOR PLAN-AREA 3/Level LL2/Sub-Cellar
A-106	FLOOR PLAN-AREA 1/Level LL1/Cellar
A-107	FLOOR PLAN-AREA 2/Level LL1/Cellar
A-108	FLOOR PLAN-AREA 3/Level LL1/Cellar
A-111	FLOOR PLAN-AREA 1/Ground Level
A-112	FLOOR PLAN-AREA 2/Ground Level
A-113	FLOOR PLAN-AREA 3/Ground Level
A-116	FLOOR PLAN-AREA 1/Mezzanine Level
A-117	FLOOR PLAN-AREA 2/Mezzanine Level
A-121	FLOOR PLAN-AREA 1/Level 2
A-123	FLOOR PLAN-AREA 3/Level 2
A-125	FLOOR PLAN-OVERALL/Level 3
A-126	FLOOR PLAN-AREA 1/Level 3
A-127	FLOOR PLAN-AREA 2/Level 3
A-128	FLOOR PLAN-AREA 3/Level 3
A-131	FLOOR PLAN-AREA 1/Level 4
A-132	FLOOR PLAN-AREA 2/Level 4
A-133	FLOOR PLAN-AREA 3/Level 4
A-136	FLOOR PLAN-AREA 1/Level 5
A-137	FLOOR PLAN-AREA 2/Level 5
A-138	FLOOR PLAN-AREA 3/Level 5
A-141	FLOOR PLAN-AREA 1/Level 6
A-142	FLOOR PLAN-AREA 2/Level 6
A-143	FLOOR PLAN-AREA 3/Level 6
A-146	FLOOR PLAN-AREA 1/Level 7
A-147	FLOOR PLAN-AREA 2/Level 7
A-148	FLOOR PLAN-AREA 3/Level 7
A-151	FLOOR PLAN-AREA 1/Level 8
A-152	FLOOR PLAN-AREA 2/Level 8
A-153	FLOOR PLAN-AREA 3/Level 8
A-156	FLOOR PLAN-AREA 1/Level 9
A-157	FLOOR PLAN-AREA 2/Level 9
A-158	FLOOR PLAN-AREA 3/Level 9
A-161	FLOOR PLAN-AREA 1/Level 10
A-162	FLOOR PLAN-AREA 2/Level 10
A-163	FLOOR PLAN-AREA 3/Level 10
A-201	CEILING PLAN-AREA 1/Level LL2/Sub-Cellar
A-202	CEILING PLAN-AREA 2/Level LL2/Sub-Cellar
A-203	CEILING PLAN-AREA 3/Level LL2/Sub-Cellar
A-206	CEILING PLAN-AREA 1/Level LL1/Cellar
A-207	CEILING PLAN-AREA 2/Level LL1/Cellar
A-208	CEILING PLAN-AREA 3/Level LL1/Cellar
A-211	CEILING PLAN-AREA 1/Ground Level
A-212	CEILING PLAN-AREA 2/Ground Level
A-213	CEILING PLAN-AREA 3/Ground Level

DRAWING LIST ISSUED FOR BID PACKAGE 2

<u>NUMBER</u>	<u>TITLE</u>
T-001	COVER SHEET, TABLE OF CONTENTS
A-001	SYMBOLS, ABBREVIATIONS, NOTES
A-101	FLOOR PLAN-AREA 1/Level LL2/Sub-Cellar
A-102	FLOOR PLAN-AREA 2/Level LL2/Sub-Cellar
A-103	FLOOR PLAN-AREA 3/Level LL2/Sub-Cellar
A-106	FLOOR PLAN-AREA 1/Level LL1/Cellar
A-107	FLOOR PLAN-AREA 2/Level LL1/Cellar
A-108	FLOOR PLAN-AREA 3/Level LL1/Cellar
A-111	FLOOR PLAN-AREA 1/Ground Level
A-112	FLOOR PLAN-AREA 2/Ground Level
A-113	FLOOR PLAN-AREA 3/Ground Level
A-116	FLOOR PLAN-AREA 1/Mezzanine Level
A-117	FLOOR PLAN-AREA 2/Mezzanine Level
A-121	FLOOR PLAN-AREA 1/Level 2
A-123	FLOOR PLAN-AREA 3/Level 2
A-125	FLOOR PLAN-OVERALL/Level 3
A-126	FLOOR PLAN-AREA 1/Level 3
A-127	FLOOR PLAN-AREA 2/Level 3
A-128	FLOOR PLAN-AREA 3/Level 3
A-131	FLOOR PLAN-AREA 1/Level 4
A-132	FLOOR PLAN-AREA 2/Level 4
A-133	FLOOR PLAN-AREA 3/Level 4
A-136	FLOOR PLAN-AREA 1/Level 5
A-137	FLOOR PLAN-AREA 2/Level 5
A-138	FLOOR PLAN-AREA 3/Level 5
A-141	FLOOR PLAN-AREA 1/Level 6
A-142	FLOOR PLAN-AREA 2/Level 6
A-143	FLOOR PLAN-AREA 3/Level 6
A-146	FLOOR PLAN-AREA 1/Level 7
A-147	FLOOR PLAN-AREA 2/Level 7
A-148	FLOOR PLAN-AREA 3/Level 7
A-151	FLOOR PLAN-AREA 1/Level 8
A-152	FLOOR PLAN-AREA 2/Level 8
A-153	FLOOR PLAN-AREA 3/Level 8
A-156	FLOOR PLAN-AREA 1/Level 9
A-157	FLOOR PLAN-AREA 2/Level 9
A-158	FLOOR PLAN-AREA 3/Level 9
A-161	FLOOR PLAN-AREA 1/Level 10
A-162	FLOOR PLAN-AREA 2/Level 10
A-163	FLOOR PLAN-AREA 3/Level 10
A-201	CEILING PLAN-AREA 1/Level LL2/Sub-Cellar
A-202	CEILING PLAN-AREA 2/Level LL2/Sub-Cellar
A-203	CEILING PLAN-AREA 3/Level LL2/Sub-Cellar
A-206	CEILING PLAN-AREA 1/Level LL1/Cellar
A-207	CEILING PLAN-AREA 2/Level LL1/Cellar
A-208	CEILING PLAN-AREA 3/Level LL1/Cellar
A-211	CEILING PLAN-AREA 1/Ground Level
A-212	CEILING PLAN-AREA 2/Ground Level
A-213	CEILING PLAN-AREA 3/Ground Level

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
A-221	CEILING PLAN-AREA 1/Mezzanine Level
A-222	CEILING PLAN-AREA 2/Mezzanine Level
A-226	CEILING PLAN-AREA 1/Level 2
A-228	CEILING PLAN-AREA 3/Level 2
A-231	CEILING PLAN-AREA 1/Level 3
A-232	CEILING PLAN-AREA 2/Level 3
A-233	CEILING PLAN-AREA 3/Level 3
A-241	CEILING PLAN-AREA 1/Level 4
A-242	CEILING PLAN-AREA 2/Level 4
A-243	CEILING PLAN-AREA 3/Level 4
A-246	CEILING PLAN-AREA 1/Level 5
A-247	CEILING PLAN-AREA 2/Level 5
A-248	CEILING PLAN-AREA 3/Level 5
A-251	CEILING PLAN-AREA 1/Level 6
A-252	CEILING PLAN-AREA 2/Level 6
A-253	CEILING PLAN-AREA 3/Level 6
A-256	CEILING PLAN-AREA 1/Level 7
A-257	CEILING PLAN-AREA 2/Level 7
A-258	CEILING PLAN-AREA 3/Level 7
A-261	CEILING PLAN-AREA 1/Level 8
A-263	CEILING PLAN-AREA 3/Level 8
A-266	CEILING PLAN-AREA 1/Level 9
A-267	CEILING PLAN-AREA 2/Level 9
A-268	CEILING PLAN-AREA 3/Level 9
A-302	EAST ELEVATION
A-310	BUILDING SECTION/Looking West
A-315	BUILDING SECTION/Looking South
A-400	ENCLOSURE/Type 2-Office Wall/Level 2
A-401	ENCLOSURE/Type 2-Office Wall/Level 2, Area 1
A-402	ENCLOSURE/Type 2-Office Wall/Level 2, Area 3
A-403	ENCLOSURE/Type 2-Office Wall/Level 2
A-404	ENCLOSURE/Type 3-Store Front/West Lobby Entry
A-451	ROOFING, Roofing Details
A-510	STAIR/CORRIDOR/GW-3/RL-1
A-511	STAIR/CORRIDOR/Interior Glass Enclosures/GW-3/RL-1
A-530	PARTITION TYPES/Schedule
A-531	PARTITION TYPES/Schedule
A-532	CMU WALLS/Joint/Anchorage Details - Floor/Wall/Ceiling
A-533	PARTITION WALLS/Details - Floor/Wall/Ceiling
A-534	CEILING DETAILS/Basement, Grand Jury & Typ. Courtrooms
A-535	CEILING DETAILS/Courtrooms
A-536	CEILING DETAILS/Basement, Grand Jury & Typ. Courtrooms
A-540	CEILING DETAILS
A-541	CEILING DETAILS
A-545	CEILING DETAILS/Perimeter Metal Fascia & Soffit Details
A-546	CEILING DETAILS
A-550	CEILING DETAILS/GWB Clg with Cont. Slots/Typ. Elevator Lobbies
A-560	ELEVATOR CORE PLANS/Elevators E1-12, E16-17, E23
A-561	PLAN DETAIL, Elevator Core Plans

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
A-574	FIRE STAIR #8/Plan/Section/Metal Pan-Conc.Fill
A-620	DOOR/FRAME TYPES / Frame Details
S-001	GENERAL NOTES
S-110	TENTH FLOOR PART PLAN & DUNNAGE PLAN
M-001	HVAC SCOPE OF WORK
M-002	HVAC NOTES AND DETAILS
DM-200	LEVEL B2 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-201	LEVEL B2 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-202	LEVEL B2 - AREA 2 (A) MECH ROOM DEMOLITION EXISTING PIPING PLAN
DM-203	LEVEL B1 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-204	LEVEL B1 - AREA 1 (C) DEMOLITION EXISTING PIPING
DM-205	LEVEL B1 - AREA 2 (C) DEMOLITION EXISTING PIPING PLAN
DM-206	LEVEL B1 - AREA 3 (C) MECH ROOM DEMOLITION EXISTING PLAN
DM-207	LEVEL G - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-208	LEVEL G - AREA 2(A) DEMOLITION EXISTING CW PIPING
DM-209	LEVEL G - MECH ROOM DEMOLITION EXISTING PIPING
DM-210	LEVEL MEZZ - AREA 1 (A&B) DEMOLITION EXISTING PIPING PLAN
DM-211	LEVEL MEZZ - AREA 2 (A) DEMOLITION EXISTING PIPING PLAN
DM-212	LEVEL 2 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-213	LEVEL 2 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-214	LEVEL 10 - AREA 1 (B) MECH. ROOM DEMOLITION EXISTING PIPING
DM-215	LEVEL 10 - MECH ROOM DEMOLITION EXISTING PIPING PLAN
DM-216	LEVEL 3 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-217	LEVEL 3 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-218	LEVEL 4 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-219	LEVEL 4 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-220	LEVEL 5 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-221	LEVEL 5 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-222	LEVEL 6 - AREA 1 (B) DEMOLITION EXISTING PLAN
DM-223	LEVEL 6 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-224	LEVEL 7 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-225	LEVEL 7 - AREA 2 (A) DEMOLITION EXISTING PIPING PLAN
DM-226	LEVEL 7 - AREA 2 (B) DEMOLITION EXISTING PIPING PLAN
DM-227	LEVEL 7 - AREA 3 (A) DEMOLITION EXISTING PIPING PLAN
DM-228	LEVEL 7 - AREA 3 (B) DEMOLITION EXISTING PIPING PLAN
DM-229	LEVEL 7 - AREA 3(C) DEMOLITION EXISTING PIPING
DM-230	LEVEL 7 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-231	LEVEL 8 - AREA 1 (A) DEMOLITION EXISTING PIPING PLAN
DM-232	LEVEL 8 - AREA 1 (B) DEMOLITION EXISTING PIPING PLAN
DM-233	LEVEL 8 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-234	LEVEL 9 - AREA 1 (A) DEMOLITION EXISTING PIPING PLAN
DM-235	LEVEL 9 - AREA 2 (A) DEMOLITION EXISTING PIPING
DM-236	LEVEL 9 - AREA 3(C) DEMOLITION EXISTING PIPING PLAN
DM-237	LEVEL 9 - AREA 3 (D) DEMOLITION EXISTING PIPING PLAN
DM-238	LEVEL 10 - AREA 2 - HVAC DEMOLITION EXISTING PIPING PLAN
DM-239	LEVEL 10 - AREA 3 - HVAC DEMOLITION EXISTING PIPING PLAN
DM-240	LEVEL 10 - AREA W2 - HVAC DEMOLITION PART PLAN
M-300	LEVEL B2 - AREA 1 (B) NEW CW PIPING
M-301	LEVEL B2 - AREA 3 (D) NEW CW PIPING

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
M-302	LEVEL B1 - AREA 1 (B) NEW CW PIPING
M-303	LEVEL B1 - AREA 1 (C) NEW CW PIPING
M-304	LEVEL B1 - AREA 2 (A) NEW CW PIPING
M-305	LEVEL B1 - AREA 2 (B) NEW CW PIPING
M-306	LEVEL B1 - AREA 2 (C) NEW CW PIPING
M-307	LEVEL B1 - AREA 3 (A) NEW CW PIPING
M-308	LEVEL B1 - AREA 3 (B) NEW CW PIPING
M-309	LEVEL G - AREA 1 (B) NEW CW PIPING
M-310	LEVEL G - AREA 2 (A) NEW CW PIPING
M-311	LEVEL MEZZ - AREA 1 (A&B) NEW CW PIPING
M-312	LEVEL MEZZ - AREA 2 (A) NEW CW PIPING
M-313	LEVEL 2 - AREA 1 (B) NEW CW PIPING
M-314	LEVEL 2 - AREA 1 (B) NEW CW PIPING
M-315	LEVEL 2 - AREA 3 (D) NEW CW PIPING
M-316	LEVEL 3 - AREA 1 (B) NEW CW PIPING
M-317	LEVEL 3 - AREA 2 (A) NEW CW PIPING
M-318	LEVEL 3 - AREA 3 (D) NEW CW PIPING
M-319	LEVEL 4 - AREA 1 (B) NEW CW PIPING
M-320	LEVEL 4 - AREA 2 (A) NEW CW PIPING
M-321	LEVEL 4 - AREA 3 (D) NEW CW PIPING
M-322	LEVEL 5 - AREA 1 (B) NEW CW PIPING
M-323	LEVEL 5 - AREA 2 (A) NEW CW PIPING
M-324	LEVEL 5 - AREA 3 (D) NEW CW PIPING
M-325	LEVEL 6 - AREA 1 (B) NEW CW PIPING
M-326	LEVEL 6 - AREA 2 (A) NEW CW PIPING
M-327	LEVEL 6 - AREA 3 (D) NEW CW PIPING
M-328	LEVEL 7 - AREA 1 (B) NEW CW PIPING
M-329	LEVEL 7 - AREA 2 (A) NEW CW PIPING
M-330	LEVEL 7 - AREA 2 (B) NEW CW PIPING
M-331	LEVEL 7 - AREA 3 (A) NEW CW PIPING
M-332	LEVEL 7 - AREA 3 (B) NEW CW PIPING
M-333	LEVEL 7 - AREA 3 (C) NEW CW PIPING
M-334	LEVEL 7 - AREA 3 (C) DUCT
M-335	LEVEL 7 - AREA 3 (D) NEW CW PIPING
M-336	LEVEL 7 - AREA 3 (D) DUCT
M-337	LEVEL 7 - AREA W2 DUCT
M-338	LEVEL 8 - AREA 1 (A) NEW CW PIPING
M-339	LEVEL 8 - AREA 1 (A) NEW DUCTWORK PLAN
M-340	LEVEL 8 - AREA 1 (B) NEW CW PIPING
M-341	LEVEL 8 - AREA 3 (D) NEW CW PIPING
M-342	LEVEL 8 - AREA W2 DUCTWORK DEMOLITION AND NEW WORK
M-343	LEVEL 9 - AREA 1 (A) NEW CW PIPING
M-344	LEVEL 9 - AREA 2 (A) NEW CW PIPING
M-345	LEVEL 9 - AREA 3(C) NEW CW PIPING
M-346	LEVEL 9 - AREA 3(D) NEW CW PIPING
M-347	FLOOR PLAN - AREA 1&2 LEVEL 10-HVAC NEW CW PIPING
M-348	FLOOR PLAN - AREA 3 LEVEL 10-HVAC NEW CW PIPING
M-349	PART PLAN - AREA W2 LEVEL 10-HVAC NEW CW PIPING
M-350	PART PLAN - AREA W2 LEVEL 11-HVAC NEW CW PIPING

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
M-400	LEVEL B2 - MECH ROOM NEW CW PIPING
M-401	LEVEL B1 - AREA 3 (C) CW PIPING & AHU 2
M-402	LEVEL G - MECH ROOM NEW CW PIPING
M-403	LEVEL 10 - AREA 1 (B) MECH. ROOM NEW CW PIPING
M-500	HVAC CONDENSER WATER RISER DIAGRAM
M-501	HVAC ENGINATOR EXHAUST & MAKEUP AIR RISER DIAGRAM
M-600	HVAC DETAILS SHEET 1
M-601	HVAC DETAILS SHEET 2
M-602	HVAC DETAILS SHEET 3
M-700	HVAC SCHEDULES SHEET 1
M-800	HVAC CONTROLS SHEET 1
M-900	HVAC GRAND JURY AV CLOSET FANS
M-901	MEZZ LEVEL AREA W1 FSD REPLACEMENT
M-902	MEZZ LEVEL AREA W3 FSD REPLACEMENT
M-903	LEVEL 2 AREA W2 FSD REPLACEMENT
M-904	LEVEL 2 AREA 4 (A) FSD REPLACEMENT
M-905	LEVEL 4 AREA W3 FSD REPLACEMENT
M-906	LEVEL 4 CORE AREA W2 FSD REPLACEMENT
M-907	LEVEL 6 AREA W1 FD REPLACEMENT
M-908	LEVEL 6 CORE AREA W3 FSD REPLACEMENT
M-909	LEVEL 7 AREA W2 FSD REPLACEMENT
M-910	LEVEL 8 AREA W1 FD REPLACEMENT
M-911	LEVEL 8 AREA W1 FSD REPLACEMENT
M-912	LEVEL 9 AREA W1 FSD REPLACEMENT & RETURN GRILLE
M-913	LEVEL 2 SOUTH BLANK OFF PANEL INSTALLATION
M-014	LEVEL 7 AREA W1 VOLUME DAMPER INSTALLATION
EN-100	ENERGY COMPLIANCE SHEET 1
E-001	ELECTRICAL SYMBOL LIST
E-102	ELECTRICAL DEMOLITION FLOOR PLAN AREA 3 - LEVEL B1 (CELLAR) - POWER
E-201	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL B1 (CELLAR) - POWER
E-202	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL B1 (CELLAR) - POWER
E-203	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 2 - POWER
E-204	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 3 - POWER
E-205	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 3 - POWER
E-206	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 3 - POWER
E-207	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 4 - POWER
E-208	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 4 - POWER
E-208	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 4 - POWER
E-210	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 5 - POWER
E-211	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 5 - POWER
E-212	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 5 - POWER
E-213	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 6 - POWER
E-214	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 6 - POWER
E-215	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 6 - POWER
E-216	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 7 - POWER
E-217	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 8 - POWER
E-218	ELECTRICAL FLOOR PLAN AREA 1 - LEVEL 10 - POWER
E-219	ELECTRICAL FLOOR PLAN AREA 2 - LEVEL 10 - POWER
E-220	ELECTRICAL FLOOR PLAN AREA 3 - LEVEL 10 - POWER

DRAWING LIST ISSUED FOR BID PACKAGE 2

NUMBER	TITLE
E-401	ELECTRICAL PART PLAN - SERVICE TO EPP-10AC REPLACEMENT
E-402	ELECTRICAL PART PLAN - ROOF - LEVEL 12 - LIGHTNING PROTECTION
E-501	ELECTRICAL RISER DIAGRAM
E-600	ELECTRICAL DETAILS SHEET NO. 1
E-700	ELECTRICAL SCHEDULES SHEET #1
E-701	ELECTRICAL SCHEDULES SHEET #2
FA-001	FIRE ALARM LEGEND
FA-101	FLOOR PLAN - AREA 3 LEVEL B1 (CELLAR) - FIRE ALARM
FA-102	FLOOR PLAN - AREA 1 LEVEL MEZZANINE - FIRE ALARM
FA-103	FLOOR PLAN - AREA 2 LEVEL MEZZANINE - FIRE ALARM
FA-104	FLOOR PLAN - AREA 1 LEVEL 2 - FIRE ALARM
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SCHEDULE D

Electrical Motor Control Equipment

(Reference: 01 3506, Article 3.8 of the DDC Standard General Conditions)

Requirements for electrical motor equipment may be included in one or more sections of the Specifications for the Contract for the Project. Schedule D set forth below delineates specific information for electrical motor control equipment. In the event of any conflict between the Specifications and this Schedule D, Schedule D shall take precedence; provided, however, in the event of an omission from Schedule D (i.e., Schedule D omits either a reference to or information concerning electrical motor equipment which is set forth in the Specifications), such omission from Schedule D shall have no effect and the Contractor's obligation with respect to the electrical motor control equipment, as set forth in the Specifications, shall remain in full force and effect.

DB Disconnect Circuit Breaker (Switch)	P Pilot Light	BG Break Glass Station
TS Thermal Switch	F Firestat	HOA Hand-Off Auto.
MS Magnetic Starter	T Thermostat	PB Push Button Station
CMS Comb. Mag. Starter	AL Alternator	RO Remote "off"

Equip. Ident.	Location	# of Units	HP	Volts and Phase	Control Type: See legend above	Remarks:
WC-22	MUSTER ROOM	1	1/5	208/1	T	
WC-23	SUPERVISOR	1	1/5	208/1	T	
WC-24	ROOM 147	1	1/5	208/1	T	
WC-25	ROOM 143	1	1/5	208/1	T	
WC-26	ROOM 144	1	1/5	208/1	T	
WC-27	ROOM 804	1	1/5	208/1	T	
DC-R-1	ROOF	12	1.5	460/3	TS	
DC-R-2	ROOF	12	1.5	460/3	TS	
DC-R-3	ROOF	12	1.5	460/3	TS	
SF-2	B1 LEVEL	1	15	460/3	TS	
TF-7-1	7 TH FL	1	2	208/3	T	
MUAF-10-1	LEVEL 10 MECH ROOM	1	¾	208/3	T	
EF-10-1	LEVEL 10 MECH ROOM	1	¾	208/3	T	
TF-*-20/30 TF-*-80/90	AUDIO ROOM CLOSET	8	1/50	115/1	T	
TF-*-00/10	VIDEO ROOM CLOSET	4	1/10	115/1	T	

TF-*-40/50 TF-*-60/70	AUDIO & NETWORK CLOSET	8	1/8	115/1	T	
CWP-1 CWP-2	LEVEL 10 MECH ROOM	2	15	460/3	VFD	
CWP-3 CWP-4	LEVEL 10 MECH ROOM	2	15	460/3	VFD	
AC-2-1	LEVEL 2	1	1	460/3	T	

SCHEDULE E

Separation of Trades

NOT USED FOR SINGLE CONTRACTS

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CONTRACT # 1
GENERAL CONSTRUCTION WORK

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SECTION 02 41 19 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide selective demolition in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Demolition and removal of selected portions of the building as required to execute the work.
2. Additional removals noted on drawings.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.4 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site with the Commissioner.
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.
 6. Document and distribute proceedings to those present and to other that are affected by observations and conclusions.

1.5 SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- 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 the City of New York's, public and other users and occupants of the building on-site and interior 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. Coordination of continuing occupancy and use of portions of existing building.
- C. Predemolition Photographs: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.
1. Photographs shall be digital images.
 2. Items not documented as damaged will be assumed to be caused by the Contractor and shall be repaired or replaced at no additional cost to the City of New York.
- D. Inventory: Submit a list of items that have been removed for reinstallation.
- 1.6 FIELD CONDITIONS
- A. City of New York will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so site and building operations will not be disrupted.
- 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.
- 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.

1.7 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with site and building's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition information provided by City of New York. City of New York does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Engage a professional engineer to perform an engineering survey of 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 building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- D. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs and templates.
 - 1. Inventory and record the condition of items to be removed and reinstalled. Provide photographs of conditions that might be misconstrued as damage caused by operations.
 - 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.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Commissioner will arrange to shut off indicated services/systems when requested by Contractor.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

- A. Temporary Protection: 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.
- B. Temporary Shoring: Design, 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.
- C. Remove temporary barricades and protections where hazards no longer exist.

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. 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. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. 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.
 - 4. Maintain adequate ventilation when using cutting torches.
 - 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 6. Dispose of demolished items and materials promptly.
- B. 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.
- C. 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.

- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by 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.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 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.
- B. Burning: Do not burn demolished materials.

3.6 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 02 41 19

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SECTION 028013 – GENERAL CONTRACTOR WORK
ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

- A. The "General Conditions" apply to the work of this Section.
- B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **\$15,000.00** for the **General Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.
- C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.
- D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.
- E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".
- F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.
- G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

- H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The General contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

- I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other than regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

- J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

- A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.
1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".
 2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.
 3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least \$250,000.00 in each of the three years.
 4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.
 5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule,

taking into consideration other business commitments. The asbestos abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

- B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.
- C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

- A. Name and address of building City or operator;
- B. Project description:
 - 1. Size - square feet, number of linear feet, etc;
 - 2. Age - date of construction and renovations (if known);
 - 3. Use - i.e., office, school, industrial, etc.
 - 4. Scope - repair, demolition, cleaning, etc.
- C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

- D. Building location/address, including Block and Lot numbers;
- E. Work schedule including the starting and completion dates;
- F. Abatement methods to be employed;
- G. Procedures for removal of asbestos-containing material;
- H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The Asbestos abatement contractor will be paid a basic unit price of **\$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

- A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.
- B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).
- C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

- A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.
- B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).
- C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.
- D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

- B. The following information shall be included for each payment request:
 - 1. Description of work performed.
 - 2. Linear footage and pipe sizes involved.
 - 3. Square footage for boiler & breaching insulation removed.
 - 4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
 - 5. Square footage of encapsulation, sealing, patching, and painting involved.
 - 6. Total cost associated with compliance with the assigned task.
 - 7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
 - 8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
 - 9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.

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10. Attach a copy of valid workmen compensation insurance.
 11. Valid asbestos insurance per occurrence.
 12. General liability insurance when required.
- C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.
- D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

<u>PIPE INSULATION SIZE O.D.</u>	<u>PIPE SIZE O.D.</u>	<u>SQUARE FOOTAGE PER LINEAR FOOT</u>
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement

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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 1.08, multiplied by the unit price in Section 1.04.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

$$100 \times 0.65 = 65 \text{ sq.ft.} \quad 65 \times \text{unit price} = \text{Payment}$$

$$100 \times 2.62 = 262 \text{ sq.ft.} \quad 262 \times \text{unit price} = \text{Payment}$$

- B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

$$1000 \text{ S.F.} \times (1.5) \times \text{the Unit Price} = \text{Payment}$$

- C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.
- D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.
- E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.
- F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.
- G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.
- H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

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- 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

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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.

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8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the building owner. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:
 - a. Copies of licenses of all asbestos abatement contractors involved in the project;
 - b. Copies of 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 73 30 - CONCRETE REPAIR WORK

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, and services to provide for the structural repair of concrete members with manufactured structural repair concrete/mortar as shown on Drawings and as specified herein. Work includes removing concrete slab for post installation and restoring the slab upon completion.

1.2 REFERENCE STANDARDS

- A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.
 - 1. American Society of Testing and Materials (ASTM)

1.3 SUBMITTALS

- A. Product Data
 - 1. Provide manufacturer's information on the structural repair concrete/mortar, including application instructions and specifications.
- B. Quality Control Submittals
 - 1. Certificates:
 - a. Furnish manufacturer's certification that materials meet or exceed Specification requirements.
 - b. Manufacturer's training certificate: Furnish letter from manufacturer stating personnel performing work have been instructed on the proper usage of the material.
 - 2. Repair Procedure: Furnish written description of repair procedures and operations sequencing based on manufacturer's requirements prior to commencing the Work.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Materials specified shall be delivered to the site in sealed, properly labeled containers. Containers shall indicate manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).
- B. Keep containers tightly closed when not in use. Comply with manufacturer's printed instructions for storing and protecting materials.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Structural Repair Concrete
 - 1. Shall be lightweight concrete or non-shrink grout.

- a. Compressive strength of 5000 psi in 28 days when tested in accordance with ASTM C109.
- B. Miscellaneous Materials
 - 1. Water: Potable water, ASTM C94
 - 2. Coarse aggregate: Clean, washed crushed stone, 3/8" maximum size, conforming to ASTM C33.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Commissioner any conditions that prevent the performance of this Work.
- B. The Contractor shall determine the most suitable material indicated in Part 2 of this Specification to be used for each application to achieve the most structural sound repair with appropriate finish, unless specifically indicated on the Drawings. The contractor shall include in the repair work procedure what materials will be used where and how the repair will be achieved for both the structural integrity of the patch and the correct finish.

3.2 PREPARATION AND PROTECTION

- A. Protection
 - 1. Protect adjacent surfaces not to be restored. Protect sills, ledges, and projections from material droppings.
- B. Surface Preparation
 - 1. Remove loose concrete and foreign material. If required form the open slab area and pace concrete or grout.
 - 2. If steel reinforcing is exposed, chip out behind the reinforcing steel. Chip a minimum of 1/2" behind the bar and 3" past the point where the bar is exposed. Concrete behind bars shall be removed enough to allow for the entire circumference of the bar to be cleaned. Remove concrete to the point past where sound material begins.
 - 3. Exposed steel reinforcement and steel beams shall be free of all rust, scale, oil, paint, grease, loose mill scale, and all other foreign matter that will prevent bonding with the repair concrete. Use power chipping or power driven brushes and clean to an SSPC-SP2 or SP3 surface preparation.

3.3 PROTECTION AND CLEANING

- A. Clean all adjacent areas of excess material.
- B. Protect material from freezing and from rainfall prior to final set.

END OF SECTION 03 73 30

SECTION 051200 - STRUCTURAL STEEL FRAMING

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:

1. Structural steel.

B. Related Sections:

1. DDC General Conditions for independent testing agency procedures and administrative requirements.
2. Section 05 5000 - "Metal Fabrication" for steel lintels not attached to structural-steel frame, miscellaneous steel fabrications, and other metal items not defined as structural steel.

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."

1.4 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator, including comprehensive engineering design by a qualified professional engineer, to withstand loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC 360.
2. Use ASD; data are given at service-load level.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, holes, and other pertinent data.
2. Include embedment drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pre-tensioned and slip-critical high-strength bolted connections.
5. Identify members and connections of the seismic-load-resisting system.
6. Indicate locations and dimensions of protected zones.
7. Identify demand critical welds.

8. For structural-steel connections indicated to comply with design loads, include structural design data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether pre-qualified or qualified by testing, including the following:
 1. Power source (constant current or constant voltage).
 2. Electrode manufacturer and trade name, for demand critical welds.
- D. Qualification Data: For qualified Installer, fabricator, and professional engineer.
- E. Welding certificates.
- F. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- G. Mill test reports for structural steel, including chemical and physical properties.
- H. Product Test Reports: For the following:
 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 2. Direct-tension indicators.
 3. Tension-control, high-strength bolt-nut-washer assemblies.
 4. Shear stud connectors.
 5. Shop primers.
 6. Non-shrink grout.
- I. Source quality-control reports.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector.
- C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P3 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.
- E. Comply with applicable provisions of the following specifications and documents:
 1. AISC 303.
 1. AISC 341 and AISC 341s1.
 2. AISC 360.

3. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

F. Pre-installation Conference: Conduct conference at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided testing and inspecting agency observes repackaging and seals containers.

2. Clean and re-lubricate bolts and nuts that become dry or rusty before use.

3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

1.8 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A 992/A 992M.

B. Channels, Angles: ASTM A 36/A 36M.

C. Plate and Bar: ASTM A 36/A 36M. U.O.N.

D. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, (ASTM A 563M, Class 8S) heavy-hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M), Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 325 (ASTM F 959M, Type 8.8), compressible-washer type with plain finish.

- B. High-Strength Bolts, Nuts, and Washers: ASTM A 490 (ASTM A 490M), Type 1, heavy-hex steel structural bolts or tension-control, bolt-nut-washer assemblies with splined ends; ASTM A 563, Grade DH, (ASTM A 563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M), Type 1, hardened carbon-steel washers with plain finish.
 - 1. Direct-Tension Indicators: ASTM F 959, Type 490 (ASTM F 959M, Type 10.9), compressible-washer type with plain finish.
- C. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH (ASTM A 563M, Class 10S) heavy-hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M), Type 1, hardened carbon-steel washers.
 - 1. Finish: Mechanically deposited zinc coating.
 - 2. Direct-Tension Indicators: ASTM F 959, Type 325 (ASTM F 959M, Type 8.8), compressible-washer type with mechanically deposited zinc coating finish.
- D. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, round head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
 - 1. Finish: Mechanically deposited zinc coating.
- E. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.
- F. Epoxy Adhesive Anchors: Adhesives shall be a cartridge type, two-component, solid epoxy based system dispensed and mixed through a static mixing nozzle supplied by the manufacturer. The adhesive shall meet the minimum requirements of ASTM C-881 Type I, II, IV and V, Grade 3, Class B and C. Acceptable installation and performance temperature ranges shall be verified with manufacturer's literature prior to installation. Epoxy adhesives shall have an evaluation report issued by ICC-ES and shall have been tested in accordance with ICC-ES AC58 for all mandatory tests.

2.3 PRIMER

- A. Primer for exposed steel members: SSPC-Paint 25, Type I, zinc oxide, alkyd, linseed oil primer.
- B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- C. Galvanizing Repair Paint: SSPC-Paint 20.

2.4 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
 - 1. Fabricate beams with rolling camber up.
 - 2. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
 - 3. Mark and match-mark materials for field assembly.
 - 4. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."
- F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.
 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.5 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop 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.
 1. Joint Type: Snug tightened, Pre-tensioned, and Slip critical per contract documents.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.6 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
 2. Surfaces to be field welded.
 3. Surfaces to be high-strength bolted with slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
 1. SSPC-SP 3, "Power Tool Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

- D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils.

2.7 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.
2. Galvanize lintels, shelf angles, and steel elements exposed to weather, attached to structural-steel frame and located in exterior walls.

2.8 SOURCE QUALITY CONTROL

- A. Testing Agency: The City of New York will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports for Special Inspections.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

- D. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 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.

3.3 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. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- D. Splice members only where indicated.
- E. Do not use thermal cutting during erection unless approved by Commissioner. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

- A. 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.
 - 1. Joint Type: Snug tightened, Pre-tensioned, and Slip critical per contract documents.
- B. Weld Connections: Comply with AWS D1.1/D1.1M 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. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
 - 3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: The City of New York will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections for Special Inspections.
- B. Bolted Connections: Bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.
 - 1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.6 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 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

END OF SECTION 05 12 00

SECTION 05 70 10 - DECORATIVE METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide decorative metal in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Extruded aluminum tubes and angle caps.

1.2 COORDINATION AND SCHEDULING

- A. Coordinate installation of anchorages for decorative metal. Furnish setting drawings, and directions for installing anchorages, including anchor bolts, and items with integral anchors. Deliver items to Project site in time for installation.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

- A. Product Data: For the following:

1. Manufacturer's product lines of railings assembled from standard components.
2. Grout, anchoring cement, and paint products.

- B. Shop Drawings: Show fabrication and installation details for decorative metal.

1. Include plans, elevations, component details, and attachment details.
2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

- C. Samples for Initial Selection: For products involving selection of color, texture, or design, including mechanical finishes.

- D. Samples for Verification: For each type of exposed finish required.

1. Sections of vertical tube assembly and extruded cap, 12 inches long by full profile.
2. Fittings and brackets.

- E. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

- F. Welding certificates.

1.5 QUALITY ASSURANCE

- A. 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. Organic-Coating Applicator Qualifications: A firm experienced in successfully applying organic coatings, of type indicated, to aluminum extrusions and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements. 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. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
- D. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 - 1. Build mockups of one complete bay including window trim with adjoining gypsum drywall construction.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store decorative metal in a well-ventilated area, protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.
- B. Cover finished surfaces with strippable coating that will not harm the finished surfaces.

1.7 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Use materials with smooth, flat surfaces unless otherwise indicated. Use materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.2 ALUMINUM

- A. Fabricate products from 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, Including Extruded Tubing: ASTM B 221, Alloy 6063-T5/T52.
- C. Plate and Sheet: ASTM B 209, Alloy 6061-T6.

2.3 FASTENERS

- A. Fastener Materials: Unless otherwise indicated, provide the following:
 - 1. Aluminum Components: Type 304 stainless-steel fasteners.

2. Galvanized-Steel Components: Plated-steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.
 3. Dissimilar Metals: Type 304 stainless-steel fasteners.
- B. Fasteners for Anchoring to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated.
- C. Provide concealed fasteners unless otherwise indicated.

2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
1. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

2.5 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form work true to line and level with accurate angles and surfaces.
- D. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 welds; no evidence of a welded joint.
- E. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- F. Brackets, Fittings, and Anchors: Provide brackets, fittings, and anchors to connect members to other work unless otherwise indicated.

2.6 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Mechanical Finish: AA-M3x; sand top rails, handrails, and intermediate rails in one direction only, parallel to length of railing, with 120- and 320-grit abrasive. After installation, polish railings with No. 0 steel wool immersed in paste wax, then rub to a luster with a soft dry cloth.

- C. High-Performance Organic Finish: Two-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. Custom Color and Gloss: As selected by Commissioner from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.
- B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels.
- C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of decorative metal, restore finishes to eliminate evidence of such corrective work.
- D. 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.
- E. Install gaskets as work progresses.
- F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.
- G. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 - 1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 CLEANING AND PROTECTION

- A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.
- B. 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.

- 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.

END OF SECTION 05 70 10

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SECTION 07 21 10 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide thermal insulation in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Mineral-wool board.
2. Spray-applied cellulosic insulation.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

1.3 QUALITY ASSURANCE

- A. Mockup: Provide mockup of the proposed dense pack insulation fill. Make 2 vertical voids completely filled with multiple vertical holes. Approved mockup may be incorporated into the final installation.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MINERAL-WOOL BOARD

- A. Mineral-Wool Board, Type II, Unfaced: ASTM C 612, Type II; with maximum flame-spread and smoke-developed indexes of 15 and zero, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics. Nominal density of 6 lb/cu. ft..

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Industrial Insulation Group, LLC (IIG-LLC).
 - b. Roxul Inc.
 - c. Thermafiber, Inc.; an Owens Corning company.
 - d. Approved equal.

- B. Mineral-Wool Board, Type III, Faced: ASTM C 612, Type III; faced on one side with foil-scrim or foil-scrim-polyethylene vapor retarder; with maximum flame-spread and smoke-developed indexes of 15 and zero, respectively, per ASTM E 84. Nominal density of 8 lb/cu. ft..

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Industrial Insulation Group, LLC (IIG-LLC).
- b. Roxul Inc.
- c. Thermafiber, Inc.; an Owens Corning company
- d. Approved equal.

2.2 SPRAY-APPLIED CELLULOSIC INSULATION

- A. Self-Supported, Spray-Applied Cellulosic Insulation: ASTM C 1149, Type I (materials applied with liquid adhesive; suitable for either exposed or enclosed applications), chemically treated for flame-resistance, processing, and handling characteristics.
 1. Flame Spread Index: Not more than 25, and have a smoke-developed index of not more than 50 as tested per ASTM E 84.
 2. Meets ASTM C-739 requirement for Smoldering Combustion and Critical Radiant Flux.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. GreenFiber.
 2. International Cellulose Corp.
 3. Nu-Wool Co., Inc.
 4. Approved equal.

2.3 INSULATION FASTENERS

- A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AGM Industries, Inc.
 - b. Gemco.
 - c. Approved equal.
- B. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick galvanized-steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than 1-1/2 inches square or in diameter.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AGM Industries, Inc.
 - b. Gemco.
 - c. Approved equal.
- C. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates without damaging insulation, fasteners, or substrates.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AGM Industries, Inc.
 - b. Gemco.
 - c. Approved equal.

2.4 ACCESSORIES

- A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF INSULATION

- A. Board Insulation: Install on exterior extruded wall framing members according to the following requirements:
 - 1. Use insulation widths and lengths that cover the surface and abut existing insulation. If more than one length is required to cover the framing, provide lengths that will produce a snug fit between ends.
 - 2. Impale insulation on spindles attached to framing members and cover with disks. Cut back protruding spindles.
- B. Spray-Applied Cellulosic Insulation: Apply spray-applied insulation according to manufacturer's written instructions. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.
 - 1. Provide multiple vertical holes in shaft wall assemblies so that the voids between studs are completely dense packed. Provide no less than 4 holes for each vertical void between studs.
 - 2. Follow methods that are established in the mock up assemblies.
 - 3. Do not cover holes until each vertical void is completely dense packed and approved by the Commissioner.

3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 10

SECTION 07 55 20 – MODIFIED BITUMINOUS MEMBRANE ROOFING REPAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide modified bituminous membrane roofing repairs in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Cutting, patching and repairs to existing modified bituminous membrane roofing required for the installation of mechanical equipment and the respective supporting steel.
 2. Roofing insulation.
 3. Roof membrane surfacing material.

1.2 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 for definitions of terms related to roofing work not otherwise defined in this Section.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install modified bituminous membrane components and base flashing system with compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movement, and exposure to weather without failure, in strict accordance with manufacturer's written instructions and maintains the existing warranties and guarantees that are in place for the area of the repairs.
- B. Provide modified bituminous sheet roofing system and component materials that have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure and meet the wind-uplift requirements of the existing adjoining roofing.
- C. Insulation Fire-Performance Characteristics: Provide insulation materials that are identical to materials that are in place.

1.4 SUBMITTALS

- A. Product Data: For each type of roofing product specified. Include data substantiating that materials comply with requirements.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work, for the following:
1. Base flashings, cants, and membrane terminations.
 2. Tapered insulation, including slopes.
 3. Penetration details and related flashing.
- C. Manufacturer's Certification: Submit manufacturer's certification indicating that bituminous materials delivered to Project comply with required standards.
- D. Installer Certification: Submit written certification from manufacturer of modified bituminous sheet roofing system certifying that Installer is approved by manufacturer to install specified roofing system.

1.5 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Obtain primary products, including each type of roofing sheet, bitumen, membrane flashings, and vapor retarder (if any), from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products for use with roofing system specified.
- B. The contractor or subcontractor performing the work of this section must be a company regularly engaged in performing roofing projects with its own workforce and have successfully completed in a timely fashion at least three (3) roofing projects similar in scope, size and type to the required work within the last three (3) consecutive years prior to the bid opening. At least one of those projects must have been performed within the last twelve (12) months. The three (3) qualifying projects must have utilized one or more of the roofing systems specified for the project being bid herein, been installed by the contractor's or subcontractor's company utilizing its own workforce and must have qualified for, and have been issued, the warranty provided by the manufacturer of the roofing system. In addition, the contractor or subcontractor must be a certified or authorized installer for at least one of the manufacturer's roofing systems specified herein and shall submit proof of same.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated, weathertight location to ensure no significant moisture pickup and maintain at a temperature exceeding roofing system manufacturer's written instructions. Store rolls of felt and other sheet materials on end on pallets or other raised surfaces. Do not double-stack rolls.
 - 1. Handle and store roofing materials and place equipment in a manner to avoid significant or permanent damage to deck or structural supporting members.
- B. Do not leave unused plies and other sheet materials on the roof overnight or when roofing work is not in progress unless protected from weather and moisture and unless maintained at a temperature exceeding 50 deg F.
- C. Deliver and store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.
- D. Protect roofing insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

1.7 PROJECT CONDITIONS

- A. **Weather Limitations:** Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturers' written instructions and guarantee requirements.
 - 1. **Temperature:** Surface and air temperature shall be as recommended by manufacturer of the materials being installed.
 - 2. When applying roofing materials in temperatures below 40 degrees F, follow manufacturer's published procedures for working in cold weather.
- B. **Substrate Conditions:** Do not begin roofing installation until substrates have been inspected and are determined to be in satisfactory condition.
- C. **Moisture Protection:** Cover, seal, and otherwise protect the roof membrane, roof insulation and all flashings so that water cannot accumulate or flow under the completed portions. When and where required, provide temporary water cut-offs in accordance with the roofing manufacturer's written Specifications.

1.8 SPECIAL ROOFING WARRANTY

- A. Submit certified documentation from the roofing manufacturer indicating the acceptance of the repairs and that the completed assembly is in accordance with the manufacturer's requirements and that all guarantees and warranties are in effect for the entire roof including the patched areas.
- B. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of ten (10) years.

PART 2 - PRODUCTS

2.1 MODIFIED BITUMINOUS SHEET

- A. Modified Bituminous Membrane Roofing: Use products of the same manufacturer or compatible products of other manufacturer's.
- B. SBS-Modified Bituminous Sheet, Mineral-Granule Surfaced: SBS-modified asphalt sheet, with continuous layer of mineral granules factory applied to top exposed surface; suitable for application method specified; manufacturer's standard thickness and weight; for use and of reinforcing type and granule color matching existing.
- C. Existing original roofing manufacturer is Siplast.

2.2 AUXILIARY MEMBRANE MATERIALS

- A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with SBS-modified bituminous roofing.
- B. Asphalt Primer: ASTM D 41.
- C. Roofing Asphalt: ASTM D 312, Type IV.
- D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- E. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve. Match existing adjoining materials.
- F. Glass-Fiber Fabric: Woven glass cloth, treated with asphalt; complying with ASTM D 1668, Type 1.
- G. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer for intended use.

2.3 INSULATION MATERIALS

- A. General: Provide preformed, roofing insulation boards that comply with requirements and match the existing materials.

2.4 INSULATION ACCESSORIES

- A. General: Furnish roofing insulation accessories recommended by insulation manufacturer for intended use and compatible with roofing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with Installer present, for compliance with requirements.
- B. Verify that roof openings and penetrations are in place and set and braced.
- C. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at roof penetrations and terminations and match the thicknesses of insulation required.

3.2 GENERAL REQUIREMENTS

- A. Provide temporary weathertight protection until roof repairs and flashings are installed. Ascertain if existing guarantees are in force and execute the Work so as not to invalidate such guarantees.
- B. Protect other work from spillage of roofing materials, and prevent materials from entering or clogging drains and conductors. Restore other work damaged by installation of roof patching/repair work.
- C. Coordinate the installation of roofing so that insulation is not exposed to precipitation nor exposed overnight. Provide cut-offs at end of each day's work. Remove cut-offs before resuming work.

3.3 ROOF MEMBRANE PATCHING AND REPAIRS

- A. General: Comply with roofing materials manufacturer's instructions and recommendations for roof membrane system installation, except where more stringent requirements are required.
- B. Install modified bituminous membrane patching and repair system according to roofing system manufacturer's written instructions and applicable recommendations of NRCA/ARMA.
- C. Start installation of roofing repairs/patching in the presence of roofing system manufacturer's technical personnel.
- D. Install membranes with ply sheets shingled uniformly to achieve required number of membrane plies throughout. Shingle in direction to shed water.
- E. Coordinate system components so insulations, liquid flashings and roof membranes are not exposed to precipitation or left exposed at the end of the workday or when rain is forecast.
 - 1. Provide sealed cutoffs at end of each day's work.
 - 2. Complete terminations and flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- F. Prevent roofing materials and accessories from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.4 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

- B. Comply with roofing system manufacturer's written instructions for handling, installation, and bonding or anchorage of insulation to substrate roofing insulation. Provide installation that complies with specified performance requirements including wind uplift and other securement performance.
- C. Install roof insulations under area of roofing to conform to existing insulation slopes and profiles, and as required to properly shed water to existing roof drainage.
- D. Install insulation in layers as required to match existing roof system.

3.5 FLASHING AND STRIPPING INSTALLATION

- A. Install modified bituminous membrane base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
- B. Mechanically fasten top of modified bituminous membrane base flashing securely at terminations and perimeter of roofing for Special Inspections.
- C. Install modified bituminous stripping where metal flanges and edgings are set on membrane roofing, according to roofing system manufacturer's written instructions.

3.6 FIELD QUALITY CONTROL

- A. Inspection: Arrange for roofing system manufacturer's technical personnel to inspect condition of base ply prior to installation of finish ply, and submit verification that base ply is in acceptable condition to receive finish ply. Do not proceed with installation of finish ply without manufacturer's verification. Follow manufacturer's recommendations for correcting deficiencies found.

3.7 PROTECTING AND CLEANING

- A. Protect modified bituminous membrane roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to the Commissioner.
- B. Correct deficiencies in or remove modified bituminous roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair base flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to guarantee requirements.

END OF SECTION 07 55 20

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SECTION 07 81 10 – FIREPROOFING PATCHING AND REPAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide fireproofing patching and repairs in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Repair and patching of existing fireproofing where damaged by new construction work and as required for new work.
 2. Accessories and related items as required for complete installation and required fire resistance performance.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data for fireproofing product indicated.
1. Submit manufacturer's product specifications and installation instructions for material required.
- B. Shop Drawings: Submit plans and other views to show the extent of various types, thicknesses, fire- resistance ratings, locations damaged by new construction Work, and any surface preparation of fireproofing systems to be installed
- C. Certificates: Submit the following certificates:
1. Fireproofing manufacturers' certification that their proposed products comply with specification requirements, are suitable for the use indicated and will comply with building code requirements in effect for the Project.
 2. Certified approvals of the material, and approved tested assemblies of testing agencies.
- D. Compatibility and Adhesion Test Reports: From sprayed fire-resistive material manufacturer indicating the following:
1. Materials have been tested for bond with substrates.
 2. Materials have been verified by sprayed fire-resistive material 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.

1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain fireproofing materials from a single manufacturer for each different product.
- B. Applicator/Installer Qualifications: Fireproofing shall be applied by a Contractor having the proper equipment, in accordance with manufacturer's recommendations.
- C. Fire Performance Characteristics: Provide materials and construction which are identical to those tested for the following fire performance characteristics, according to test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. The Contractor shall be responsible for Fire Performance Testing.

1. Fire Resistance Ratings: As indicated by reference to design designation in UL "Fire Resistance Directory" for fire-rated assemblies in which fireproofing serves as direct-applied protection, tested per ASTM E 119.
 2. Surface Burning Characteristics: As indicated for each fireproofing product required, tested per ASTM E 84 and listed in UL "Building Materials Directory"
 3. Fire Resistance Rating: Minimum fire resistance rating shall be 2 hours, unless indicated on the drawings otherwise.
- 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 within this Section.
 2. Verify that manufacturer, through its own laboratory testing or field experience, has not found primers or coatings to be incompatible with sprayed fire-resistive material.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to project site in original, unopened packages. Include labels with names of products and manufacturers, date of manufacture, shelf life, and UL labels for fire-resistance ratings.
1. Do not use materials whose shelf life has expired.
- B. Store materials inside, under cover, and in a manner to keep them dry until ready to use. Remove from project site and discard any materials that have been exposed to moisture or have otherwise deteriorated.

1.5 PROJECT CONDITIONS

- A. Environmental Conditions: Unless manufacturer's instructions or recommendations are more restrictive, do not install fireproofing when ambient or substrate temperatures are 40 deg. F and falling, unless temporary protection and heat can be provided to maintain temperatures at or above this temperature level for 24 hours before, during and for 24 hours after application of fireproofing. Ventilate fireproofing by means of natural or, where this is inadequate, of forced air circulation during and after application until it dries thoroughly. Follow the manufacturer's instructions.
- B. Ventilate areas required to receive indicated fireproofing system during application, and for not less than 24 hours following application.

1.6 SEQUENCING

- A. Sequence and coordinate application of fireproofing to avoid unnecessary exposure of fireproofing to abrasion and other damage likely to occur during construction operations.
1. Ensure that fireproofing is installed prior to installation of enclosing or concealing Work, with sufficient time allowed for inspection, testing and correction of defective fireproofing.

1.7 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of ten (10) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, provide sprayed-on fireproofing systems as manufactured by one of the following, or approved equal:
1. Carboline Co.; Fireproofing Products Division.
 2. Isolatek International; Cafco Products.
 3. W.R. Grace & Co.
 4. Approved equal.

2.2 SPRAYED-ON FIREPROOFING PATCHING MATERIALS

- A. General: For concealed and exposed areas of sprayed-on fireproofing to be patched and/or repaired; provide manufacturer's standard products complying with requirements indicated for material composition and for minimum physical properties representative each product listed, measured by standard test methods referenced with each property.
- B. Sprayed-on Fireproofing Material Composition: Factory-mixed cementitious dry formulation of inorganic binders and lightweight mineral aggregates mixed with water at project site to form a slurry for pumping and for dispersal by compressed air introduced at spray nozzle. Products containing mineral wool fibers will not be considered for use on this project.
- C. Physical Properties: Provide sprayed-on fireproof patching materials with the following performance characteristics, unless otherwise indicated:
1. Dry Density: 15 lb/cu. ft. for average and individual densities regardless of density indicated in referenced fire-resistance design, or greater if required to attain fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
 2. Bond Strength: 200 lbf/sq. ft. per ASTM E 736.
 3. Compressive Strength: 8.25 lbf/sq. in. or 1200 psf; per ASTM E 761.
 4. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
 5. Deflection: No cracking, spalling, delamination or the like per ASTM E 759.
 6. Effect of Impact on Bonding: No cracking, spalling, delamination or the like per ASTM E 760.
 7. Air Erosion: Maximum weight loss of 0.005 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests, minimum thickness of sprayed fire-resistive material is 0.75 inch, maximum dry density is 15 lb/cu. ft., test specimens are not pre-purged by mechanically induced air velocities, and tests are terminated after 24 hours.
 8. Resistance to Mold: Tested per ASTM G21 and show resistance to mold growth for a period of 60 days.
- D. Color: Material as supplied to the jobsite shall have been formulated by the manufacturer at the factory with a signal colorant. Fireproofing shall dry to a blue color which can be identified through the product matrix to identify specific areas of patched fireproofing.
- E. Selected Products: Provide ARetro-Guard[®], as manufactured by W.R. Grace & Co., or one of the following, as acceptable to the Commissioner:
1. "Cafco 300 SB", as manufactured by Isolatek International; Cafco Products.
 2. "Pyrolite 15 Blue", as manufactured by Carboline Co.; Fireproofing Products Division.
 3. Approved equal.

2.3 AUXILIARY FIREPROOFING MATERIALS

- A. General: Provide auxiliary fire-resistive materials that are compatible with sprayed fire-resistive materials and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product, provide primer that complies with one or more of the following requirements:
 - 1. 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.
 - 2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of sprayed fire-resistive material per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 3. Sealers: Coat with sealer to prevent airborne matter.
- C. Adhesive for Bonding Fireproofing: Type recommended by fireproofing manufacturer to achieve the specified bond and deflection requirements.
- D. Metal Lath: Provide 3.4 lb. per sq. yd. expanded galvanized diamond steel lath, with reinforcing and anchorage devices where required for substrate, and complying with applicable fire-endurance tests. Provide corner beads and other lathing accessories of standard design and weight.
- E. Accessories: As required to meet the requirements of U.L. designs having the required fire resistance ratings; and as recommended by the system manufacturer.
- F. Temporary Protections: Provide pressure sensitive tapes, tarps, sheeting and other such devices required to ensure that adjacent materials and finishes not scheduled to receive sprayed-on fireproofing patching/repairs materials are free from overspray, contamination and fall-out resulting from application of specified materials/ systems.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Require Installer to examine substrates to determine if they are in satisfactory condition to receive fireproofing.
- B. Rating Requirements:
 - 1. Provide thicknesses as required for compliance with indicated fire-endurance ratings. Extend fireproofing full thickness over entire area of each substrate to be protected. Except as otherwise recommended by manufacturer, install body of fireproof covering material in a single course, and as follows.
 - 2. Unless otherwise indicated apply sprayed fire-resistive materials in thicknesses and densities required to achieve the fire resistance ratings matching those of the existing adjacent fireproofing; as required by the Uniform Construction Code.

3.2 PREPARATION

- A. Provide ventilation in areas to receive fire resistive coating.
- B. Clean substrates of oil, grease, rolling compounds, incompatible primers, and loose mill scale which could impair bond of fireproofing.

- C. Prime substrates where recommended by fireproofing manufacturer.
- D. Cover other Work and existing improvements which might be damaged by fall-out or spatter of fireproofing materials during patching/repair application. Provide temporary enclosure as required to confine fireproofing operations, protect the environment, and to ensure adequate ambient conditions for temperature and ventilation.

3.3 INSTALLATION, GENERAL

- 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 sprayed fire-resistive material that meets requirements indicated within this Section and substantiated by test reports, with respect to rate of application, accelerator use, sealers, topcoats, tamping, troweling, water overspray, or other materials and procedures affecting test results.
- C. Install metal lath, as required, to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by sprayed fire-resistive material manufacturer. Attach lathing accessories where indicated or required for secure attachment to substrate.
- D. Coat substrates with adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by sprayed fire-resistive material manufacturer for material and application indicated.
- E. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by sprayed fire-resistive material manufacturer, install body of fire-resistive covering in a single course.
- F. 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 sprayed fire-resistive material manufacturer.
- G. Maintain ambient conditions during installation and for cure period following installation, as recommended by manufacturer. Provide ventilation and avoid excessive rate of drying. Protect from exposure to sun.

3.4 INSTALLING CONCEALED SPRAYED FIRE-RESISTIVE MATERIALS

- A. Apply concealed fire-resistive material in thicknesses and densities matching the existing, but not less than those required to achieve fire-resistance ratings designated for each condition, and comply with requirements for thickness specified or stated.
- B. Apply concealed sprayed-on fire-resistive material in thicknesses required to obtain designated fire-resistance rating in accordance with the Uniform Construction Code.

3.5 FIELD QUALITY CONTROL

- A. Repair or replace fireproofing within areas where test results indicate fireproofing does not comply with code or performance requirements. Repair and retest until passing. Repair damage due to testing.

B. Testing: The City of New York will engage a Testing Laboratory or Inspection Agency upon approval by the Commissioner to inspect and perform the required tests.

1. The testing laboratory will verify thickness and dry density of in-place material in accordance with ASTM E 605 and verify bond strength in accordance with ASTM E 736. Perform additional testing required by Special Inspections.

a. Test Results: Results of above tests will be made available to all parties at the completion of each floor.

b. When test results indicate fireproofing does not comply with the Contract requirements, additional random testing will be done within the testing area to determine the extent of noncompliance. This additional testing as well as remedial Work necessary to comply with specified requirements, shall be paid for by the Contractor.

3.6 PATCHING AND REPAIRS

A. Inspect after mechanical, electrical and other trades have completed Work in contact with fireproofing material, but before sprayed material is covered by subsequent construction.

B. Perform corrective measures in accordance with fireproofing material Manufacturer's recommendations.

1. Re-spray areas requiring additional fireproofing material to provide the required thickness, and replace dislodged or removed material.

2. Spray material for patching by machine directly on point to be patched, or into a container and then hand apply.

3. Hand mixing of material is not permitted.

C. Repair:

1. Re-spray all test and rejected areas.

2. Patch fireproofing material which is removed or disturbed after approval.

D. Perform final inspection of sprayed areas after patching and repair.

3.7 CLEANING AND PROTECTION

A. Immediately upon completion of troweled-on operations in each containable area of project, remove spatter and fall-out of materials from surfaces of other Work and clean exposed surfaces to remove evidence of soiling.

B. Cure exposed fireproofing materials in compliance with fireproofing manufacturer's recommendations.

C. Protect fireproofing, in accordance with the manufacturer's recommendations, from damage resulting from construction operations so that fireproofing will be without damage or deterioration at time of substantial completion.

D. Coordinate installation of fireproofing patching/repairs with other Work in order to minimize the need for other trades to cut or remove fireproofing. As other trades successively complete installation of their Work, maintain protection of structure afforded by fireproofing by patching any areas which have been removed or damaged prior to concealment of fireproofing by other Work.

END OF SECTION 07 81 10

SECTION 07 92 00 – JOINT SEALERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide joint sealers in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Interior joints in vertical surfaces.
2. Primers, bond breakers, backer rods and other accessory materials for interior and exterior joints.

1.2 SYSTEM PERFORMANCES

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.
- B. Sealants 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.

1.3 QUALITY ASSURANCE

- A. Experience Requirements:
1. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in scope, material and design to this Project, within the last (3) three years.
- B. Source for Materials: Obtain joint sealer materials from a single manufacturer for each different product.
- C. Preconstruction Field Tests: Prior to installation of joint sealants, field-test adhesion to joint substrates as recommended in ASTM C 1193.
1. Joint substrates tested shall be same finish as that of materials and finishes specified.
- D. Periodically test sealants in place for adhesion, using methods recommended by sealant manufacturer. Promptly replace any sealant which does not adhere or fails to cure.
- E. Sealant manufacturers shall review shop drawings to verify acceptability of sealant application with proper testing for adhesion and compatibility.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each product required, including instructions for preparation and application.
- B. Samples: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available.

- C. Test Reports: Submit joint sealer-substrate test results to verify compatibility of proposed joint sealers with substrates. Manufacturer shall conduct tests and provide reports confirming sealant adhesion, compatibility and absence of staining for all relevant substrates.

- 1. Test reports shall reflect results of identical substrates and finishes as that of the proposed work.

- D. Certificates: Submit certificates from manufacturers that their products comply with specifications and are suitable for the use indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original unopened containers with labels indicating manufacturer, expiration date, and other pertinent data.
- B. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS

- A. Joint Widths: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer.

1.7 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of two (2) years.
- B. 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 stone by sealant or primer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealers, joint fillers and related materials that are compatible with one another and with joint substrates, as demonstrated by testing and field experience.
- B. Colors: Provide colors of joint sealers as selected by the Commissioner.

2.2 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920.
- B. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25:
 - 1. Interior Uses: Non-traffic, glass, aluminum and nonporous joint substrates indicated; formulated with fungicide for sealing interior joints with nonporous substrates at plumbing fixtures.
 - 2. One-Part Mildew-Resistant Silicone Sealant:

- a. Dow Corning 786; Dow Corning Corp.
- b. SCS 1702; General Electric Co.
- c. 863 #345 White; Pecora Corp.
- d. Proglaze White; Tremco Corp.
- e. Approved equal.

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.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Acrylic-Emulsion Sealant:
 - a. Chem-Calk 600; Bostik Construction Products Div.
 - b. AC-20; Pecora Corp.
 - c. Tremco Acrylic Latex 834; Tremco Inc.
 - d. Approved equal.

2.4 MISCELLANEOUS JOINT SEALANTS

- A. Butyl-Polyisobutylene Sealant: Manufacturer's standard, solvent- release-curing, butyl-polyisobutylene sealant complying with AAMA 809.1, recommended for concealed joints.
- B. Butyl-Polyisobutylene Tape Sealant: Manufacturer's standard, solvent-free, butyl-polyisobutylene tape sealant with a solids content of 100%; complying with AAMA 804.1; nonstaining, paintable, and non-migrating; packaged on rolls with a release paper on one side; with reinforcement thread to prevent stretch.
- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Butyl-Polyisobutylene Sealant:
 - a. PTI 404; Protective Treatment, Inc.
 - b. Approved equal.
 - 2. Butyl-Polyisobutylene Tape Sealant:
 - a. Extru-Seal Tape; Pecora Corp.
 - b. PTI 606; Protective Treatments, Inc.
 - c. Tremco 440 Tape; Tremco Inc.
 - d. Approved equal.

2.5 JOINT SEALANT BACKING

- A. General: Provide backings which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer.
- 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. Either flexible, open cell polyurethane foam or non-gassing, closed-cell polyethylene foam, unless otherwise indicated or as recommended by the sealant manufacturer.
 - 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. Bond-Breaker Tape: Polyethylene tape or other plastic tape to prevent bond between sealant and materials at back of joint. Provide self-adhesive tape where applicable.
- 2.6 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: Provide non-staining cleaner of type acceptable to manufacturer of sealant and sealant backing materials.
 - C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect joints to receive joint sealers for compliance with requirements. Report conditions detrimental to joint sealer work. Proceed after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including water.
 2. Clean porous joint substrate surfaces to produce a clean, sound substrate. Remove loose particles remaining from cleaning.
 3. Remove laitance and form release agents from concrete.
 4. Clean non-porous surfaces with cleaners which are not harmful to substrates or leave residues that may affect joint sealers.
- B. Joint Priming: Prime joint substrates to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond; not on adjoining surfaces.
- C. Masking Tape: Mask adjoining surfaces which might be stained or damaged by sealant or by cleaning required to remove sealant. Remove tape immediately after tooling without disturbing joint.

3.3 INSTALLATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed installation instructions, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with ASTM C 1193 for use of joint sealants as applicable to conditions indicated.

- C. Latex Sealant Installation Standard: Comply with ASTM C 1193 for use of latex sealants.
- D. Installation of Sealant Backings: Install sealant backings to produce the shapes and depths of sealants for optimum capability.
 - 1. Do not leave gaps between ends of joint-fillers.
 - 2. Do not stretch, twist, puncture or tear joint-fillers.
 - 3. Do not use absorbent joint-fillers which are wet.
 - 4. Install bond breaker tape where required to prevent third-side adhesion of sealant to back of joint.
 - 5. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting joint substrates, completely filling joints and providing uniform, cross-sectional shapes and depths for optimum sealant movement. Mask adjacent surfaces if necessary to protect them from sealants.
- F. Tooling of Nonsag Sealants: Tool sealants to form smooth, uniform beads to eliminate air pockets and to ensure adhesion of sealant with sides of joint. Remove excess sealants from adjacent surfaces. Provide concave joint configuration per Figure 6A in ASTM C 1193.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears as work progresses by methods and materials approved by manufacturers of joint sealers. Remove masking tape when no longer required.

3.5 PROTECTION

- A. Protect joint sealers from contamination or damage, so that they are without deterioration or damage at time of substantial completion.
- B. Remove damaged or defective joint sealers and reseal joints to match original work.

END OF SECTION 07 92 00

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SECTION 08 11 12 – STEEL DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide steel doors in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

- 1. New steel doors within existing frames.

1.2 DEFINITIONS

- A. Uncoated steel sheet thicknesses are indicated as the minimum thickness according to HMMMA 803, Steel Tables.
- B. Metallic-coated steel sheet thicknesses are indicated as the minimum thickness of the uncoated base metal.

1.3 SUBMITTALS

- A. 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.
- B. Shop Drawings showing fabrication and installation of steel doors. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- C. Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on Contract Drawings.

1.4 QUALITY ASSURANCE

- A. Provide doors complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors and Frames" and as specified.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors.
- B. Inspect doors on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Commissioner; otherwise, remove and replace damaged items as directed.
- C. Store doors 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Steel Doors:
 - a. Curries Company.
 - b. Fenestra Corp.
 - c. Kewanee Corp.
 - d. Pioneer Industries.
 - e. Republic Builders Products.
 - f. Steelcraft; a division of Ingersoll-Rand.
 - g. Approved equal.

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial-quality carbon steel, pickled and oiled, complying with ASTM A 569.
- B. Cold-Rolled Steel Sheets: Carbon steel complying with ASTM A 366, commercial quality, or ASTM A 620, drawing quality, special killed.
- C. Supports and Anchors: Fabricated from not less than 0.0478-inch-thick steel sheet; 0.0516-inch-thick galvanized steel where used with galvanized steel frames.
- D. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.

2.3 DOORS

- A. Steel Doors: Provide 1-3/4-inch-thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:
1. Interior Doors: Grade II, heavy-duty, Model 2, seamless design, minimum 0.0478-inch-thick cold-rolled steel sheet faces.

2.4 ACCESSORIES

- A. Louvers: Provide louvers for interior doors which comply with SDI 111C, with blades or baffles formed of 0.020-inch-thick, cold-rolled steel sheet set into 0.032 inch thick steel frame. Louvers shall be 12 in. by 6 in., unless otherwise indicated.

2.5 FABRICATION

- A. Fabricate steel door units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.
1. Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:
 - a. Rigid mineral fiber with internal sound deadener on inside of face sheets (at acoustically rated doors).

2. Clearances: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between non-fire-rated pairs of doors. Not more than 3/4 inch at bottom.

- B. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- C. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- D. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- E. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI 107 and ANSI A115 Series specifications for door and frame preparation for hardware.
- F. Reinforce doors to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- G. Stops and Moldings: Provide stops and moldings around louvers. Form corners of stops and moldings with mitered hairline joints.
- H. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Template doors to match hinge locations on existing frames and for cutouts of reused existing locks and other hardware devices.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for steel sheet finishes.
- C. Apply primers and organic finishes to doors and frames after fabrication.

2.7 STEEL SHEET FINISHES

- A. Surface Preparation: Solvent-clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
- B. Pretreatment: Immediately after surface preparation, apply a conversion coating of type suited to organic coating applied over it.
- C. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install steel doors and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Door Installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.
 - 1. Install doors in existing frame opening so that doors operate smoothly and have the required clearances.

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items just before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Prime-Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

END OF SECTION 08 11 12

SECTION 08 31 13 – 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" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Wall access doors.
 2. Fire-rated wall access doors.
 3. Ceiling access doors.
 4. Fire-rated ceiling access doors.
 5. Installation of access doors furnished under other Contracts.

1.2 SUBMITTALS

- A. Product data for each type of access door assembly specified, including details of construction relative to materials, individual components, profiles, finishes, and fire-protection ratings (if required).
- B. Schedule: Provide complete door and frame schedule indicating each type of access door assembly specified herein and furnished under other Contracts. Include types, general locations, sizes, wall and ceiling construction details, latching or locking provisions, and other data pertinent to installation.
- C. Shop drawings showing fabrication and installation of customized access doors and frames, including details of each frame type, elevations of door design types, anchorage, and accessory items.
- D. Samples, 3-inch by 5-inch minimum size, of each panel face material showing factory-finished color and texture.

1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain access doors for entire Project from one source and by a single manufacturer.
- B. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per test method as indicated below, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.
1. Test Method for Vertical Installations: ASTM E 152.
 2. Test Method for Horizontal Installations: ASTM E 119.
- C. Size Variations: Obtain Commissioner's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

1.4 COORDINATION

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, including access doors furnished under other Contracts, and indicate on schedule specified under "Submittals" Article.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. J.L. Industries.
 2. Karp Associates, Inc.
 3. Larsen's Manufacturing Co.
 4. Milcor, Inc.
 5. Nystrom, Inc.
 6. The Williams Brothers Corporation of America.
 7. Approved equal.

2.2 MATERIALS

- A. Steel Sheet: ASTM A 366 commercial-quality, cold-rolled steel sheet with baked-on, rust-inhibitive primer.
- B. Zinc-Coated Steel Sheet: ASTM A 591 Electrolytic zinc-coated steel sheet with Class C coating and phosphate treatment to prepare surface for painting.
- C. Stainless-Steel Sheet: ASTM A 167, Type 304 with No. 4 finish according to ASTM A 480.

2.3 ACCESS DOORS

- A. Insulated, Fire-Rated Access Doors: Self-latching units consisting of frame, trim, door, insulation, and hardware, including automatic closer, interior latch release, and complying with the following requirements:
1. Frame with Exposed Trim: Perimeter frame with integral exposed trim complying with the following requirements:
 - a. Metal: 0.0598-inch-thick steel sheet.
 - b. Trim: 1-inch flange overlapping surfaces surrounding door frame.
 2. Trimless Frame: Perimeter frame complying with the following requirements:
 - a. Metal: 0.0598-inch-thick steel sheet.
 - b. Frame Configuration: Flange integral with frame and overlapping face of adjoining gypsum board, with surface formed to receive joint compound.
 3. Door: 0.0359-inch-thick steel sheet, welded pan type.
 4. Hinges: Continuous type.
 5. Latches: Bolt type, operated by either a ring turn or flush key device (keyed alike).
 6. Insulation: 2-inch-thick mineral-fiber insulation.
 7. Fire-Protection Rating for Walls: 1-1/2 hours with a temperature rise not exceeding 250 deg F at the end of 30 minutes.
 8. Fire-Protection Rating for Ceilings: 1 hour for combustible assemblies.
 9. Products: Provide one of the following, or equal products acceptable to the Commissioner by one of the specified manufacturers:
 - a. KRP-150FR Insulated Fire Rated Access Door; Karp Associates, Inc.
 - b. WB-FR Standard Ultra Fire-Rated Access Door; The Williams Brothers Corporation of America.
 - c. Approved equal.

- B. Flush Access Doors with Exposed Trim: Units consisting of frame with exposed trim, door, hardware, and complying with the following requirements:
1. Frame: 0.0598-inch-thick steel sheet.
 2. Door: 0.0747-inch-thick steel sheet.
 3. Trim: Flange integral with frame, 3/4 inch wide, overlapping surrounding finished surface.
 4. Hinge: Continuous type.
 5. Locks: Flush, screwdriver-operated cam.
- C. Trimless, Flush Access Doors for Gypsum Board: Units consisting of frame, concealed edge trim, door, hardware, and complying with the following requirements:
1. Frame: 0.0598-inch-thick steel sheet.
 2. Door: 0.0747-inch-thick steel sheet.
 3. Concealed, Gypsum Board Edge Trim: 0.0299-inch zinc-coated or galvanized-steel sheet with face flange formed to receive joint compound.
 4. Hinge: Concealed spring pin or continuous type.
 5. Locks: Screwdriver-operated cam.
- D. Trimless, Recessed Doors for Gypsum Board Assemblies: Units consisting of frame with concealed edge trim, door, hardware, and complying with the following requirements:
1. Frame: 0.0897-inch-thick steel sheet.
 2. Door: 0.0598-inch-thick steel sheet, recessed 1 inch.
 3. Concealed, Gypsum Board Edge Trim: 0.298-inch zinc-coated steel sheet gypsum board edge trim formed to receive joint compound.
 4. Hinge: Concealed, pivoting-rod type.
 5. Locks: Flush to finished surface, screwdriver-operated cam.
- E. Recessed Doors for Acoustical Tile Ceilings: Units consisting of frame with no exposed trim, recessed door to receive tile, hardware, and complying with the following requirements:
1. Frame: 0.0897-inch-thick steel sheet.
 2. Door: 0.0598-inch-thick steel sheet, recessed 1 inch.
 3. Hinge: Concealed, pivoting-rod type.
 4. Locks: Flush to finished surface, screwdriver-operated cam.

2.4 FABRICATION

- A. General: Manufacture each access door assembly as an integral unit ready for installation.
- B. Steel Access Doors and Frames: Continuous welded construction. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
1. Exposed Flange: Nominal 1 to 1-1/2 inches wide around perimeter of frame.
 2. For gypsum board assemblies or gypsum veneer plaster, furnish frames with edge trim for gypsum board or gypsum base.
 3. For installation in masonry construction, furnish frames with adjustable metal masonry anchors.
- C. Recessed Panel Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.
1. Furnish recessed panel doors for concealed installation in acoustic tile ceiling systems.
- D. Locking Devices: Furnish number required to hold door in flush, smooth plane when closed.

1. For cylinder lock, furnish 2 keys per lock and key all locks alike.
2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Advise Installers of other work about specific requirements relating to access door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices. Furnish inserts and anchoring devices for access doors that must be built into other construction. Coordinate delivery with other work to avoid delay.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions for installing access doors.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finished surfaces.
- C. Install concealed-frame access doors flush with adjacent finish surfaces.

3.3 ADJUST AND CLEAN

- A. Adjust hardware and panels after installation for proper operation.
- B. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08 31 13

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide door hardware in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
 - 1. Furnishing and installing of finish hardware.

1.2 QUALITY ASSURANCE

- A. Finish hardware where required shall conform to the applicable requirements of the American Insurance Association, Underwriter's Laboratories, Inc., local codes and all other regulations and agencies having jurisdiction. Such items of hardware shall bear a label or mark indicating its conformance to the above requirements.
- B. Manufacturer: A finish hardware manufacturer who has been successfully manufacturing products of the type specified for not less than 3 years. Each type of finish hardware or accessory shall be obtained from only one manufacturer.

1.3 REFERENCES

- A. Comply with applicable provisions of the following reference standards except as otherwise shown or specified.
 - 1. Building Hardware Manufacturer's Association (BHMA).
 - 2. Underwriter's Laboratories (UL).
 - 3. United States Standards (US).
 - 4. Hollow Metal Manufacturer's Association, Division of the National Association of Architectural Metal Manufacturers.
 - 5. American National Standards Institute (ANSI).
 - 6. Door and Hardware Institute (DHI).

1.4 SUBMITTALS

- A. Hardware supplier shall prepare and submit for approval 6 copies of the complete detailed hardware schedule.
- B. The supplier of hardware shall be solely responsible for any errors or omissions of the schedules, and all security hardware equal in kind and quality to that herein specified or required shall be supplied.
- C. Identify hardware items unsuitable for use as scheduled.
 - 1. Templates and/or shop drawing information shall be sent to each manufacturer who requires such information. Approved hardware schedule shall be sent to each manufacturer who requires template information.
 - 2. Maintenance instructions.

1.5 PRODUCT HANDLING

- A. As hardware is received, sort and repackage in containers marked with the hardware set number.

1.6 JOB CONDITIONS

- A. Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the hardware schedule, and include basic installation instructions in the package. Provide hardware items of proper design for door thickness, profile, swing, security and similar requirements, for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations for installation.
- B. Product Information: Furnish hardware templates installation instructions and wiring diagrams as required to each fabricator of doors and frames to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

1.7 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of ten (10) years.

PART 2 - PRODUCTS

2.1 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of builders' hardware are indicated. Products are identified by using appropriate hardware designation numbers.
- B. One or more manufacturers are listed for each hardware type required. Provide either the product designated, or the equivalent product of one of the other listed manufacturers. Provide products of a single manufacturer for each product type.

2.2 MATERIALS AND FABRICATION, GENERAL

- A. The drawings show the direction of movement of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.
- B. Do not use manufacturer's products which have manufacturer's name or trade name in a visible location, except in conjunction with required UL labels.
- C. Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not furnish hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
 - 1. Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard units are available with concealed fasteners. Standard exposed fasteners shall be modified to render the installations vandal resistant, but readily serviceable for maintenance. Welded covers will not be acceptable.
- D. Should any hardware, even though required by the Contract Drawings or Specifications, fail to meet the intended requirements or require modification to suit or fit the designated location, such correction and modification shall be made as necessary and in ample time to avoid delay in the manufacture and delivery of the hardware. Changes and modifications shall not be made

without prior notification, and approval, by the Commissioner. The Contractor shall make such corrections and modifications as directed and approved without extra cost to the City of New York.

2.3 HINGES

A. Butt Hinges - Acceptable Manufacturers:

1. McKinney Mfg. Co. (scheduled).
2. Stanley.
3. Hager Hinge Co.
4. Approved equal.

B. Note: Unless otherwise noted, butt hinges shall be full mortise, five knuckle ball or oil impregnated bearings with flat button tip.

1. Doors up to 3'-0" - Standard Weight. TA2714 - 4-1/2 inches by 4-1/2 inches.
2. Doors over 3'-0", Exterior doors - Extra Heavy Weight. T4A3386 - 5 inches by 4-1/2 inches, T4A3386 - 5 inches by 4-1/2 inches.
3. Doors up to 7'-6" - 1-1/2 pair per leaf.
4. Doors over 7'-6" to 10'-0" - 2 pair per leaf.

C. Exterior doors shall have stainless steel hinges and non-removable pins.

D. Exterior doors shall have extra heavy hinges.

E. Hinges shall conform to ANSI/BHMA A156.1.

2.4 CLOSERS

A. Acceptable Manufacturers for Overhead Closers, Floor Closers and Pivots:

1. Sargent (Scheduled), 281.
2. Rixson
3. LCN
4. Approved equal

B. Closers are required to be accessible to the physically handicapped. Provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

C. Closers scheduled for fire labeled doors shall bear Underwriter's Laboratories, Inc. approval.

D. Closers shall have secure arms and covers.

E. Closers shall be sized in accordance with the accepted manufacturer's standards to suit height, width, weight of door and draft conditions.

2.5 LOCKS

A. Acceptable Manufacturers:

1. Sargent 8200 - Cast (Scheduled for Mortise Locks).
2. Trim Designs:
 - a. LN Rose.
 - b. Approved equal.

3. Other Acceptable Manufacturers

- a. Yale
- b. Corbin Russwin
- c. Approved equal.

B. Provide nonferrous metal strikes with lips of sufficient length to protect jambs. Finish strikes with wrought box strikes and treat lock parts with bronze alloy plating to resist corrosion.

C. Locks shall comply with ANSI/BHMA A156.13.

2.6 CYLINDERS AND KEYING

A. Provide locks with 6-pin cylinders which comply with performance requirements of ANSI A156.5.

1. Provide factory construction master keying for the Contractor's use.
2. Provide removable core cylinders matching the building keying system.

B. Keys: Furnish individual change keys for each lock which is not designated to be keyed alike with a group of related locks.

1. Key Material: Provide keys of nickel silver only.
2. Key Quantity: Furnish 5 change keys for each lock.
3. Deliver keys to the Commissioner at Final Completion.

2.7 OVERHEAD STOPS AND HOLDERS

A. Acceptable Manufacturers:

1. Sargent 1540-S and 590-S (Scheduled).
2. Glynn-Johnson.
3. Rixson.
4. Approved equal.

2.8 THRESHOLDS, WEATHERSTRIPPING AND DROP SEALS

A. Acceptable Manufacturers:

1. NGP.
2. Zero.
3. Reese (Scheduled).
4. Approved equal.

B. Thresholds shall be extruded aluminum unless otherwise indicated.

2.9 BOLTS

A. Acceptable Manufacturers:

1. Rockwood.
2. Glynn-Johnson.
3. Ives (Scheduled).
4. Approved equal.

B. Provide extension type flush bolts. Provide each bottom flushbolt with a dustproof strike.

2.10 EXIT DEVICES

- A. Exit devices shall be ANSI A156.3, Grade 1 Certified and shall be listed by Underwriters Laboratories and bear the UL label for life safety in full compliance with NFPA 80 and NFPA 101. Mounting rails shall be formed from a solid single piece of stainless steel, no less than 0.072 inch thick. Push rails shall be constructed of 0.062 inch thick material. Painted or anodized aluminum shall not be considered heavy duty and is not acceptable. Heavy duty metal end caps shall be provided on all exit devices.
1. Acceptable Manufacturers: Sargent 80 Series (Basis of Design) or equal.
- B. Remove existing cylinder and mortise case. Provide blank mortise box with blank cover plate. Remove existing flush bolts and provide blank cover plates. Provide blank cylinder covers. Exposed plates and covers matching hardware.

2.11 FINISHES

- A. Finishes Specified:
- | | |
|----------------------|-------------|
| 1. Exterior Hinges | US32D (630) |
| 2. Locks and Latches | US32D (630) |
| 3. Door Closers | EN |
| 4. Stops and Holders | US32D (630) |
| 5. Miscellaneous | US32D (630) |

PART 3 - EXECUTION

3.1 GENERAL

- A. Furnish suitable templates, together with the reviewed finish hardware schedule, to the respective trades as required, to insure the accurate setting and fitting of finish hardware.

3.2 HARDWARE APPLICATION

- A. Locate hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations and except as may be otherwise directed.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finish work specified in the Division-9 Sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

3.3 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Demonstrate to the Commissioner that each item is in perfect working order and that tagged keys operate respective locks. Correct items of hardware not acceptable to the Commissioner. Deliver tagged keys to the Commissioner upon acceptance of each core cylinder installation.
- C. Adjust door control devices to compensate for final operation of heating, cooling and ventilation equipment.

3.4 HARDWARE SETS

HW Set 1

Butts	
Lockset (Storage)	8204
Door Closer	281-UO Parallel Arm
Overhead Door Stop	As Required
Weather Seal	328 A
Threshold	As Detailed

HW Set 2

	Butts	Reuse existing
1	Lockset	Reuse existing
1	Flush Bolt Set	FB 32 top and bottom
1	Dust Proof strike	

HW Set 3

	Butts	Existing
1	Exit Device	16 43 NB8710 x 306 x US32D
1	Exit Device	16 43 NB8710 x US32D

Each exit device is dogable

END OF SECTION 08 71 00

SECTION 08 88 11 – GLASS AND GLAZING REPAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide glass and glazing repairs in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
 - 1. Removal of interior plastic glazing and frames.
 - 2. New glass and glazing within openings where plastic glazing is removed.

1.2 SYSTEM DESCRIPTION

- A. Provide glass and glazing that will withstand normal thermal movement, wind loading and impact loading (where applicable), without failure of glass, failure of gaskets nor deterioration of glass and glazing materials.
- B. Normal thermal movement is defined as that resulting from an ambient temperature range of 120 deg. F and from a temperature range within glass and glass framing members of 180 deg. F.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each glazing material and fabricated glass product required, including installation and maintenance instructions. Indicate glass thickness to be used.
- B. Submit glass types and identification of glazing materials. Submit insulating glass unit certification.
- C. Samples: Submit 12 inch square samples of each type of glass indicated, and 12 inch long samples of each color of gasket.
- D. Certificates: Submit certificates from respective manufacturers attesting that glass and glazing materials furnished for project comply with requirements of agencies having jurisdiction.
- E. Separate certification will not be required for glazing materials bearing manufacturer's permanent labels that represent a quality control program of a certification agency or independent testing laboratory acceptable to authorities having jurisdiction.

1.4 QUALITY ASSURANCE

- A. Glazing Standards: Comply with recommendations of Glass Association of North America (GANA) "Glazing Manual" except where more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined.
- B. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Install glazing in one opening selected by the Commissioner, including glazing methods.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- C. Safety Glazing Standard: Provide required safety glass which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.
- D. Single Source for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator for each kind and condition of glass.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and to prevent damage to glass and glazing materials from moisture, temperature changes, direct exposure to sun, and from other causes.

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with glazing when air and substrate temperatures are outside the limits permitted by glazing material manufacturer or when joint substrates are wet or dirty.

1.7 EXTENDED WARRANTIES

- A. General: Submit warranties to repair or replace defective glass and glazing materials or workmanship. Defects include, but are not limited to the following:
 - 1. Spontaneous breakage of heat treated glass.
 - 2. Loss of effective glass bite due to shifting of glass.
 - 3. Loss of effective glass bearing on setting blocks due to shifting of glass and/or blocks.
- B. Warranty Period: 10 years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements for type, class and quality.
- B. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C 1048 requirements. Surface compression of heat strengthened glass shall be in the range of 3500 to 6500 psi.
 - 1. Tempered glass shall comply with ANSI Z97.1.
- C. Sizes: Fabricate glass to sizes required, with edge clearances and tolerances complying with recommendations of glass manufacturer.

2.2 PRIMARY GLASS PRODUCTS

- A. Clear Float Glass: Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), 1/4 inch thick.

2.3 HEAT-TREATED GLASS PRODUCTS

- A. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) Quality-Q3.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
2. Tempered glass shall be heat soaked and free from inclusions.

B. Provide thickness of tempered glass as scheduled and where indicated on Drawings.

2.4 GLAZING GASKETS

- A. Dense Gaskets: Extruded one piece gaskets of neoprene, complying with ASTM C 864, of profile required for a watertight seal, with a Shore A hardness of 75 plus 5 for hollow profiles and 60 plus 5 for solid profiles.

2.5 MISCELLANEOUS GLAZING MATERIALS

- A. Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by gasket manufacturer.
- C. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness, 4 inch minimum length by width to suit glass thickness.
- D. Shims: Shims used with setting blocks shall be of the same material, hardness, length and width as the setting blocks.
- E. Edge Blocks: Same material as setting blocks, of 50-60 Shore A durometer, of size to limit lateral movement of glass.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify compliance with applicable tolerances; for face and edge clearances; and for effective sealing of joinery. Report conditions detrimental to glazing work. Perform glazing work after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels immediately before glazing. Remove coatings which are not firmly bonded to substrates.
- B. Remove existing plastic glazing and frames. Remove existing gaskets.

3.3 GLAZING, GENERAL

- A. Comply with recommendations of glass manufacturers, of manufacturers of gaskets and other glazing materials, except where more stringent requirements are indicated by referenced glazing standards.
- B. Glazing channels are intended to provide for necessary bite on glass, minimum edge and face clearances, with reasonable tolerances.
- C. Protect glass from damage. Remove and dispose of glass units with damage or imperfections of kind that impairs performance or appearance.

- D. Protect surfaces from abrasion and other damage during handling and installation by retaining manufacturer's protective covering or by other protective methods recommended by plastic glazing manufacturer. Remove covering at border of each piece prior to glazing; remove remainder of covering immediately after installation where plastic glazing will be exposed to sunlight or other conditions where later removal will become difficult.

3.4 GLAZING

- A. Install setting blocks one quarter of glass width from each corner but with edge nearest corner not closer than 6 inches from corner or 0.125 times glass width, whichever is greater. Install blocks to prevent movement.
- B. Provide edge blocking to comply with referenced glazing standard. Install edge blocks securely, between the midheight and top of glass.
- C. Set units of glass in each series with uniformity of appearance.
- D. Install gaskets to protrude slightly out of channel, to eliminate dirt and moisture pockets. Provide adequate anchorage to ensure that gaskets will not "walk" out.
- E. 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.

3.5 PROTECTION AND CLEANING

- A. Promptly protect installed glass from breakage with crossed streamers attached to framing and held away from glass. Do not apply markers on glass. Remove nonpermanent labels and clean glass.
- B. Protect glass from contact with contaminating substances. If contaminating substances do come into contact with glass, remove immediately as recommended by glass manufacturer.
- C. Examine glass adjacent to or below exterior concrete and masonry at least once a month, for build-up of dirt, scum, alkali deposits or staining. Remove residue as recommended by glass manufacturer.
- D. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- E. Wash glass on both faces not more than 4 days prior to date scheduled for inspections to establish date of Substantial Completion in each area of project. Wash glass as recommended by glass manufacturer.

3.6 GLASS SCHEDULE

- A. General: Provide the following types of glass assemblies as indicated on the Drawings and schedules. Provide glass types comprised of the following materials; provide matching assemblies to those scheduled fabricated from heat strengthened and fully tempered glass as required by authorities having jurisdiction.
- B. Type G-1: ½ inch thick clear tempered glass.

END OF SECTION 08 88 11

SECTION 09 26 00 – GYPSUM DRYWALL ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide gypsum drywall assemblies in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Nonload-bearing steel framing members for gypsum drywall.
 2. Gypsum drywall attached to steel framing.
 3. Drywall finishing with joint tape-and-compound.
 4. Acoustical insulation and sealant for drywall.
 5. Patching and repair of existing drywall assemblies resulting from the work of this Contract.

1.2 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications and installation instructions for materials for gypsum drywall. Submit other data as required to show compliance with these specifications.
- B. Samples: Submit 12 inch long samples of each type of trim accessory.
- C. Engineering Data: Submit engineering data from gypsum drywall assembly manufacturer certifying and substantiating compliance of gypsum drywall assemblies with structural performance requirements.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:
- B. Fire-Resistance Ratings: As indicated by GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Gypsum board assemblies indicated are identical to assemblies tested for fire resistance according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- D. Structural Performance Requirements: Provide gypsum drywall assemblies to withstand the following lateral design loadings applied transiently and cyclically, for maximum heights of partitions required, within the following deflection limits.
1. Lateral Loading: 5 psf.
 2. Deflection Limits: Provide the following deflection limits, as indicated in partition schedule on Drawings:
 - a. 1/240 of partition height, unless otherwise indicated.

- b. 1/360 of partition height for walls receiving tile, plaster or veneer plaster finish.
- 3. Specified thicknesses of stud framing are minimums. Increase stud framing thicknesses as necessary to meet specified structural performance requirements without increasing partition thickness and stud depth.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packaging, bearing brand name and identification of manufacturer or supplier.
- B. Store materials to keep them dry and protected from soiling, dirt or damage. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect trim accessories from being bent or damaged.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with referenced standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum board.
- B. Cold Weather Protection: When air temperature is below 55 deg F maintain temperature of not less than 55 deg F for at least 48 hours before, during and after application of joint treatment materials.
- C. Ventilation: Ventilate building spaces to dry joint treatment material. Avoid drafts during dry, hot weather.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include but are not limited to the following:
 - 1. Steel Framing and Furring:
 - a. Bostwick Steel Framing Co.
 - b. Gold Bond Building Products Division
 - c. Marino Industries Corp.
 - d. United States Gypsum Co.
 - e. Approved equal
 - 2. Grid Suspension Systems:
 - a. Chicago Metallic Corp.
 - b. National Rolling Mills Co.
 - c. United States Gypsum Co.
 - d. Approved equal
 - 3. Gypsum Boards and Related Products:
 - a. Georgia - Pacific Corp.
 - b. Gold Bond Building Products Div.

- c. United States Gypsum Co.
- d. Approved equal

2.2 CEILING SUPPORTS

- A. General: Size ceiling support components to comply with the requirements of the NYC Building Code and with ASTM C 754.
- B. Hangers: Mild steel rods or flat bars, zinc coated or painted.
- C. Hanger Anchorage Devices: Devices whose suitability for use has been proven by standard construction practices or by certified test data. Size devices for 3x load, as determined by ASTM E 488.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch, a minimum ½ inch-wide flange, with manufacturer's standard corrosion-resistant zinc coating.
 - 1. Depth: 1-1/2 inches, unless otherwise indicated.
- E. Furring Members: ASTM C 645; 0.0179 inch minimum thickness, hat-shaped; "C"-shaped studs for spans of more than 4 feet.
- F. Furring Anchorages: 16-gage galvanized wire ties, clips and anchorages recommended by furring manufacturer.

2.3 WALL AND PARTITION FRAMING

- A. Components, General: As follows:
 - 1. Comply with ASTM C 754 for conditions indicated.
 - 2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with ASTM A 653/A 653M, G60, hot-dip galvanized or manufacturer's standard corrosion-resistant zinc coating, as indicated in partition schedule.
 - 3. Steel Studs and Runners: ASTM C 645.
 - a. Minimum Base Metal Thickness: 0.0179 inch.
 - b. Depth: As indicated.
- B. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base Metal Thickness: 0.0179 inch.
- C. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - 1. Minimum Base Metal Thickness: 0.0179 inch.
 - 2. Depth: As indicated.
- D. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch.
- E. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch-diameter wire, or double strand of 0.0475-inch-diameter wire.
- F. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, minimum bare metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

- G. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.4 GYPSUM BOARD

- A. Gypsum Wallboard: ASTM C 36, Type X, unless otherwise indicated.
 - 1. Thickness: 5/8 inch, unless otherwise indicated.
 - 2. Long Edges: Tapered, unless otherwise indicated.
 - 3. Location: As indicated.
- B. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M.
 - 1. Core: 5/8 inch, Type X, unless otherwise indicated.
 - 2. Provide FIRECODE C Core drywall where both water and fire resistance are required.
- C. Cementitious Backer Board: Panels composed of a concrete core with glass fiber mesh reinforcing on both faces covered with portland cement; average weight 3.4 lbs. per sq. ft.; 5/8 inch thickness, unless otherwise indicated. Provide one of the following:
 - 1. Wonder Board by Modulars, Inc.
 - 2. Durock Tile Backer Board by Durabond Div., USG Industries, Inc.
 - 3. Latapanel MFR-100 by Laticrete International, Inc.
 - 4. Approved equal.

2.5 TRIM ACCESSORIES

- A. General: ASTM C 1047; standard trim accessories of types required for drywall work, formed of galvanized steel and beaded for concealment of flanges in joint compound. Provide corner beads at external corners, L-type edge trim-beads, and one-piece control joint beads. Provide U-type edge trim beads where indicated.

2.6 JOINT TREATMENT MATERIALS

- A. General: ASTM C 475; of type recommended by the manufacturer.
- B. Joint Tape: Paper reinforcing tape.
- C. Joint Compound: Ready-mixed vinyl-type for interior use. Provide 2 separate grades; one specifically for bedding tapes and filling depressions, and one for topping and sanding.
- D. Water-Resistant Joint Materials: Water-resistant type for use at water-resistant backing board and as recommended by manufacturer of cementitious backer units.

2.7 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.
- B. Gypsum Board Screws: Comply with ASTM C 1002.
- C. Concealed Acoustical Sealant: Non-drying, nonhardening, nonstaining, non-bleeding sealant for concealed applications per ASTM C 919.
- D. Exposed Acoustical Sealant: Nonoxidizing, skinnable, paintable, gunnable sealant for exposed applications per ASTM C 919.

- E. Acoustical Insulation: ASTM C 665, Type I; mineral fiber blanket without membrane, Class 25 flame-spread, thicknesses as indicated.
- F. Laminating Adhesive: Water-resistant adhesive as recommended by gypsum board manufacturer for laminating gypsum boards.
- G. Leveling and Patching Compound: Latex cement as recommended by gypsum board manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Ceiling Anchorages: Coordinate work to ensure that inserts and other anchorage provisions have been installed for ceiling hangers.
- B. Leveling: Apply leveling compound to existing surfaces where gypsum board will be laminated, and patched as necessary to provide a suitable substrate.
- C. Do preparations to areas that are to be patched so that the patch does not telegraph through the finished drywall

3.2 INSTALLATION OF FRAMING, GENERAL

- A. Installation Standard: Comply with ASTM C 754 and ASTM C 840. Provide support for all edges of gypsum board. Use screw fasteners only.
- B. Install supplementary framing and bracing at terminations in the work and for support of other construction.
- C. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- D. Isolate steel framing from building structure to prevent transfer of structural loading, at locations indicated below.
- E. Do not bridge building expansion joints with support system, frame both sides of joints with furring and other support as indicated.
- F. Framing location tolerance shall not exceed 1/2 inch. Install framing and furring with adjacent fastening surfaces aligned within 1/8 inch of each other.

3.3 CEILING SUPPORT SYSTEMS

- A. Secure hangers directly to structure where possible, otherwise connect to inserts, clips or other anchorage devices or fasteners.
- B. Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. at runners.
- C. Level main runners to a tolerance of 1/8 inch in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.
- D. Wire-tie or clip furring members to supports.

- E. Space ceiling furring members 16 inches o.c. maximum.

3.4 WALL AND PARTITION FRAMING

- A. Install runner tracks at floors, ceilings and structural walls and at columns where gypsum drywall stud system abuts other work. At exterior walls, install asphalt felt strips between wall and framing.
- B. Extend partition stud system through ceilings to the structural support above the ceiling, unless otherwise indicated.
- C. Space studs and wall furring 24 inches o.c. maximum, unless otherwise indicated.
- D. At wall furring supported by back-up wall, space studs 16 inches o.c. Provide clip angles anchored to concrete masonry.
- E. Position studs vertically with open sides facing in same direction and engaging floor and ceiling runners. Begin and end each arc with a stud and space intermediate studs equally along arcs at stud spacing recommended by gypsum board manufacturer for radii indicated. Attach studs to runners with pan head framing screws. On straight lengths at ends of arcs, place studs 6 inches o.c. with last stud left free standing.
- F. Frame door openings to comply with recommendations of gypsum board manufacturer, or with "Gypsum Construction Handbook" by United States Gypsum Co. Screw studs to jambs of door frames; install runner track at head of frame and secure to jamb studs.
- G. Extend vertical jamb studs through suspended ceilings and attach to underside of structure above. Brace studs where required.
- H. Install cripple studs in runner track above door frame.
- I. Frame openings, other than door openings, with framing below sills of openings to match framing above door heads.
- J. Frame openings, other than door openings, in same manner as required for door openings; and install framing below sills of openings to match framing above door heads.
- K. Install insulation between framing or furring members where indicated. Until gypsum board is installed, hold insulation with wire staples.

3.5 GYPSUM BOARD APPLICATION AND FINISHING, GENERAL

- A. Application and Finishing Standards: ASTM C 840.
- B. Install acoustical insulation prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints away from center of walls and ceilings, and stagger not less than 1'-0" in alternate courses. Install boards to form smooth curved surfaces where shown.
- D. Install ceiling boards to minimize the number of end-butt joints, and to avoid end joints in the center of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall and partition boards vertically to avoid end-butt joints wherever possible.
- F. Install water-resistant and cementitious boards at ceramic tile where indicated.

- G. Install gypsum board with face side out. Do not install defective or damp boards. Butt boards lightly together with not more than 1/16 inch space between boards. Do not force into place.
- H. Locate edges and ends over supports, so that like edges abut, tapered edges against tapered edges and cut ends against cut ends. Stagger joints over different studs on opposite sides of partitions.
- I. Provide framing and blocking for support at openings and cutouts.
- J. Form control joints and expansion joints to receive trim accessories. Locate these joints to comply with manufacturer's instructions.
- K. Cover both faces of partition framing with gypsum board in concealed spaces, except in chase walls which are braced internally.
- L. Except for sound or fire rated applications, scraps of not less than 8 sq. ft. area may be used where concealed.
- M. Fit gypsum board around ducts, pipes and conduit.
- N. Isolate perimeter of non-load-bearing partitions from the structure. Provide ¼ inch to ½ inch space and trim edge with J-type edge trim. Seal joints with acoustical sealant.
- O. Seal sound-rated drywall and other drywall work refer to drawings with acoustical sealant to comply with ASTM C 919.
- P. Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations.

3.6 SINGLE-LAYER APPLICATION

- A. On ceilings apply gypsum board prior to wall and partition board application to the greatest extent possible.
- B. On partitions and walls apply gypsum board vertically, and provide sheet lengths which will minimize end joints.
- C. On Z-furring members apply gypsum board vertically (parallel) with no end joints. Locate edge joints over furring members.

3.7 DOUBLE-LAYER APPLICATION

- A. General: Install gypsum backing board for base layer and exposed gypsum board for face layer. Fasten base and face layers separately.
- B. On ceilings apply base layer prior to base layer on walls; apply face layers in same sequence. Offset joints between layers at least 10 inches. Apply base layers at right angles to supports.
- C. On partitions and walls apply base layer and face layers vertically, (parallel) with joints of base layer over supports and face layer joints offset at least 10 inches with base layer joints.
- D. On Z-furring members apply base layer and face layer vertically, with vertical joints offset at least one furring member. Locate edges of base layer over furring members.

3.8 INSTALLATION OF DRYWALL TRIM

- A. General: Where feasible, use the same fasteners to anchor trim as required to fasten gypsum board. Fasten flanges of trim in accordance with manufacturer's instructions. Closely fit and align ends of trim.
- B. Install metal corner beads at external corners of drywall work.
- C. Install edge trim at exposed or semi-exposed edges of drywall. Install L-type trim where work abuts other work, and where edge is exposed, revealed, gasketed, or sealant-filled.
- D. Install metal control joints (beaded-type) where indicated.

3.9 FINISHING OF DRYWALL

- A. General: Treat gypsum board joints, trim accessories, penetrations, fastener heads, surface defects and elsewhere as required for applied finishes. Prefill open joints using proper compound.
- B. Apply joint tape between gypsum boards, except at trim.
- C. Apply joint compound in 3 coats, not including prefill in joints, and sand between last 2 coats and after last coat. Provide additional coat to achieve a level 5 finish.
- D. Water-Resistant and Tile Backer Board: Treat joints and fasteners to comply with directions of backer board and water-resistant joint compound manufacturer, using water-resistant joint compound. Do not crown the joints. Embed tape in joints and form true angles.
- E. Partial Finishing: Omit third coat and sanding on concealed drywall work which requires finishing to achieve fire-resistance rating, sound rating, or to act as an air or smoke barrier.

3.10 PROTECTION OF WORK

- A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall work being without damage or deterioration at time of substantial completion.

END OF SECTION 09 26 00

SECTION 09 26 50 - GYPSUM BOARD SHAFT WALL ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide gypsum board shaft wall assemblies in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Patching and repair of existing shaft wall enclosures resulting from the work of this contract.
 2. New shaft wall enclosures as the result of the work of this contract.

1.2 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board construction not defined in this Section or in other referenced standards.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance Characteristics: As follows:
1. Provide gypsum board shaft-wall assemblies capable of withstanding the full air-pressure loads indicated for maximum heights of partitions indicated without failing and while maintaining an airtight and smoke-tight seal. Evidence of failure includes deflections exceeding limits indicated, bending stresses causing studs to break or to distort, and end-reaction shear causing runners to bend or to shear and studs to become crippled.

1.4 SUBMITTALS

- A. Product Data: For gypsum board shaft-wall assembly specified.
- B. Engineering Data: Submit engineering data from gypsum drywall assembly manufacturer certifying and substantiating compliance of gypsum drywall assemblies with structural performance requirements.
- C. Fire-Test-Response Reports: From a qualified independent testing and inspecting agency substantiating gypsum board shaft-wall assembly's required fire-resistance rating.
- D. Include data substantiating that items that penetrate gypsum board shaft-wall assembly do not negate fire-resistance rating.
- E. Research/Evaluation Reports: Of the model code organization acceptable to authorities having jurisdiction that substantiate required fire-resistance rating for gypsum board shaft-wall assembly and evidence compliance with building code in effect for Project.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain components for gypsum board shaft-wall assembly indicated through one source from a single manufacturer.
- B. Fire-Resistance-Rated Assemblies: Provide gypsum board shaft-wall assemblies as follows:

- C. Assemblies comply with requirements of fire-response-tested assemblies indicated by GA File Numbers in GA-600, "Fire Resistance Design Manual"; or design designations in UL's "Fire Resistance Directory" or certification listings of Warnock Hersey or another testing and inspecting agency acceptable to authorities having jurisdiction.
- D. Fire-resistance ratings were determined by testing assemblies for fire response per ASTM E 119.
- E. Structural Performance Requirements: Provide gypsum board shaft-wall assemblies to withstand the following lateral design loadings applied transiently and cyclically, for maximum heights of partitions required, within the following deflection limits.
 - 1. Lateral Loading: 7.5 psf.
 - 2. Deflection Limits: Provide the following deflection limits, as indicated in partition schedule on Drawings:
 - a. 1/240 of partition height, unless otherwise indicated.
 - b. 1/360 of partition height for walls receiving tile, plaster or veneer plaster finish.
 - 3. Specified thicknesses of stud framing are minimums. Increase stud framing thicknesses as necessary to meet specified structural performance requirements without increasing partition thickness and stud depth.
- F. Mock-Up: Provide a mock-up of patched areas of gypsum board shaft wall assemblies, demonstrating new work interfacing with existing and patched holes where insulation is installed. Patched areas approved by the Commissioner may be incorporated in the final work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, and bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum boards flat on leveled supports off the ground to prevent sagging.

1.7 PROJECT CONDITIONS

- A. Comply with requirements for environmental conditions, room temperatures, and ventilation specified in Section 092600 - Gypsum Drywall Assemblies.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide drywall materials, including accessories and fasteners produced by one manufacturer. Products specified herein by proprietary designation establish the quality standards required. Equivalent products of other manufacturers will be considered provided they meet those established standards.

2.2 ASSEMBLY MATERIALS

- A. General: Provide materials and components complying with requirements of fire-resistance-rated assemblies indicated. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt joints.

- B. Steel Framing: ASTM C 645.
- C. Protective Coating: ASTM A 653, G40 hot-dip galvanized coating.
- D. Studs: Manufacturer's standard profile for fire-resistance-rated assembly indicated and in depth and thickness indicated.
- E. Track (Runner): Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches, in depth matching studs and in thickness indicated.
- F. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches, in depth matching studs, and not less than 0.0329 inch thick.
- G. Corner and End Members: Manufacturer's standard profile framing member for use at corners or where assembly terminates at other work, in depth matching studs and in manufacturer's standard thickness not less than the stud thickness indicated.
- H. Deflection Track: Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs.
 - 1. Product: Subject to compliance with requirements, provide one of the following:
 - a. Delta Star, Inc., Superior Metal Trim; Superior Flex Track System (SFT).
 - b. Metal-Lite, Inc.; Slotted Track.
 - c. Approved equal.
- I. Firestop Track: 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.
 - 1. Product: Subject to compliance with requirements, provide one of the following:
 - a. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 - b. Metal-Lite, Inc.; The System.
 - c. Approved equal.
- J. Slip Connectors: Manufacturer's standard slip fastened brackets designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from ASTM A 653 steel; SS Grade 50, Class 1, 50 ksi minimum yield strength, 65 ksi minimum tensile strength, G60 hot-dipped galvanized coating, except as otherwise noted.
- K. Provide screws with accessories designated for screw attachment, including specialty bushings for slip connection.
- L. Connector Devices:
 - 1. Vertical Deflection Clips: Rigid attachment to structure and screw attachment to stud web using step-bushings to permit frictionless vertical movement. 68 mil minimum thickness, size as required by structural design calculations.
 - 2. Product: Subject to compliance with requirements, provide VertiClip assemblies manufactured by The Steel Network Inc., or approved equal.
- M. Gypsum Liner Panels: Manufacturer's proprietary liner panels in 1-inch thickness and with moisture-resistant paper faces, unless otherwise indicated.

- N. Gypsum Wallboard: ASTM C 36, core type as required by fire-resistance-rated assembly indicated.
- O. Edges: Tapered.
- P. Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in Section 092600 - Gypsum Drywall Assemblies that comply with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.
- Q. Gypsum Wallboard Joint-Treatment Materials: Provide materials complying with ASTM C 475 and gypsum board shaft-wall assembly manufacturer's written recommendations for applications indicated, and as specified in Section 092600 - Gypsum Drywall Assemblies.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board shaft-wall construction that comply with requirements indicated and gypsum board shaft-wall assembly manufacturer's written recommendations.
- B. Steel drill screws complying with ASTM C 1002 for fastening gypsum board to steel members less than 0.03 inch thick.
- C. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.03 to 0.112 inch thick.
- D. Runner (Track) Fasteners: Power-driven fasteners of type indicated below and of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of runners, fasteners, or structural substrates where anchors are embedded.
- E. Powder-Actuated Fasteners: Provide powder-actuated fasteners with capability to sustain, without failure, a load equal to 10 times that imposed by shaft-wall assemblies, as determined by testing conducted by a qualified independent testing agency according to ASTM E 1190.
- F. Postinstalled Expansion Anchors: Where indicated, provide expansion anchors with capability to sustain, without failure, a load equal to 5 times that imposed by shaft-wall assemblies, as determined by testing conducted by a qualified independent testing agency according to ASTM E 488.
- G. Acoustical Sealant: As recommended by gypsum board shaft-wall assembly manufacturer for application indicated.
- H. Mineral-Fiber Type: Fibers manufactured from glass, slag wool or rock wool.
- I. Cellulose Insulation: Refer to Section 072100 – Thermal Insulation for requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present. Substrates include hollow-metal frames, cast-in anchors, and structural framing; examine for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board shaft-wall assemblies. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- 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.
 - 2. Section 092600 - Gypsum Drywall Assemblies for applying and finishing gypsum wallboard and other panels indicated.
- B. Do not bridge building expansion joints with shaft-wall assemblies; frame both sides of joints with furring and other support as indicated.
- 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. Coordinate gypsum board shaft-wall construction with insulation work.
- E. 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.
- F. Install control joints at locations indicated to maintain fire-resistance rating of assembly indicated.
- G. Seal gypsum board shaft-walls with acoustical sealant at perimeter of assembly where it abuts other work and at joints and penetrations within 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 manufacturer's written instructions or ASTM C 919, whichever is more stringent.

3.3 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board shaft-wall assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09 26 50

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SECTION 09 30 00 – TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide tiling in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Cutting and patching of existing tile finishes and substrates to accommodate the Work of this Project, including the following:
 - a. Unglazed mosaic floor tile.
 - b. Glazed wall tile and trim.
 - c. Agglomerated stone tile.
 - d. Trim units and accessories.
 - e. Stone thresholds.
 - f. Setting and grouting materials.
 - g. Waterproof membrane.
 2. Replacement of damaged and deteriorated tile as directed by the Commissioner.

1.2 PERFORMANCE REQUIREMENTS

- A. Dynamic 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.
 2. Ramp Surfaces: Minimum 0.8.

1.3 REFERENCE STANDARDS

- A. Comply with the applicable provisions and recommendations of the following:
1. Tile Council of North America (TCNA) "Handbook for Ceramic Tile Installation."
 2. ANSI A137.1 "American National Standard Specifications for Ceramic Tile."

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.
- B. Grout Samples for Initial Selection: Manufacturer's color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.
- C. Samples for Verification Purposes: Submit 3 full sized samples of each type and color of tile and grout required. Submit full size units of each type of trim and accessory for each color required.
- D. Sample Panels: Submit sample panels for each type of tile installation of sufficient size to demonstrate color, pattern and tile layout. Tile to be mounted on plywood or hardboard backing, grouted with specified grout.
- E. Certification: As applicable, furnish Master Grade Certificates for each shipment and type of tile, signed by Manufacturer and Installer.

- F. Shop Drawings: Submit shop drawings showing pattern layout for tile walls and floors. Indicate locations and widths of control and isolation joints in tile substrates and finished surfaces.

1.5 QUALITY ASSURANCE

- A. Tile Manufacturing Standard: As applicable, furnish tile complying with the requirements of ANSI A137.1 for Standard Grade.
- B. Materials: Handle, store, mix and apply proprietary setting and grouting materials in compliance with manufacturer's instructions.
- C. Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- D. All tile of each separate type and color used in a space shall be from the same manufacturing production run.
- E. Provide materials and products of a single manufacturer for all components forming acoustically attenuated and waterproof substrates for tile.
- F. Comply with NYC Building Code and other authorities having jurisdiction at Project location.

1.6 PRODUCT HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Maintain temperatures at not less than 50 deg. F in tiled areas during installation and for 7 days after completion, unless higher temperatures required by referenced installation standard or manufacturer's instructions.

1.8 EXTRA MATERIALS

- A. Deliver extra materials to City of New York. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly 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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include but are not limited to the following:
 - 1. Ceramic and Mosaic Tile:
 - a. American Olean.

- b. Dal-Tile Corporation.
- c. Monarch Tile Manufacturing, Inc.
- d. Approved equal.

2. Agglomerated Stone Tile:

- a. Dupont Zodiaq.
- b. Permagrain Products, Inc.
- c. Rover North America.
- d. Silestone, Inc.; as supplied by Renaissance Building Products, Inc.
- e. Approved equal

3. Setting and Grouting Materials:

- a. Boiardi Products Corp.
- b. Laticrete International, Inc.
- c. C-Cure Chemical Co.
- d. Bostik.
- e. Approved equal.

2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with materials for setting and grouting.
- C. Sizes: Provide custom sized tile as scheduled.
- D. Colors, Textures and Patterns: Provide scheduled finishes and colors matching existing tile installations. Where not indicated, provide selection made by the Commissioner from the manufacturer's full range of standard colors, textures and patterns.
 - 1. Provide tile trim and accessories including, but not limited to, bullnose, base, inside corners, outside corners and similar trims which match color and finish of adjoining flat tile.
 - 2. Provide coved units at base and bullnose units for wainscot caps.
- E. Product and Color Selections: Provide products scheduled at the end of this Section, or equal products acceptable to the Commissioner, by one of the specified manufacturers.

2.3 TILE

- A. Glazed Wall Tile: Provide flat tile, of porcelain with gloss glazed finish, of sizes scheduled, 1/4 inch thick, with cushion edges.
- B. Unglazed Mosaic Floor Tile: Provide factory mounted, unglazed porcelain tile, of sizes scheduled, 1/4 inch thick, with cushion edges.
- C. Agglomerated Stone Tile: Provide flat, cast marble tiles with honed finish, of sizes scheduled, 3/8 or 7/16 inch thick.
- D. Trim Units: Provide glazed ceramic and paver tile trim units to match adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable, and of standard shapes to suit conditions of installation. Provide coved units at junction of floor and wall.

2.4 THRESHOLDS

A. Marble Saddles:

1. Furnish honed Italian marble as distributed by Dal-Tile Corp. or approved equal, color as selected by Commissioner.
2. Supply grade A, first quality, free from cracks, chips, stains or other defects, uniform in tone and coloring.
3. Furnish double bevel (1/4 inch one side only) as required by finish floor surface elevations.

2.5 SETTING MATERIALS

A. Water: Clear and without deleterious substances which would impair the work.

B. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method.

1. Reinforcing Wire Fabric: Galvanized welded wire fabric, 2 inches by 2 inches - WO.3 (16 ASW gage or 0.0625 inch diameter); comply with ASTM A 185 and ASTM A 82 except for minimum wire size.

C. Latex-Portland Cement Mortar: Latex-modified portland cement mortar complying with ANSI A118.4.

1. Acceptable Product: Laticrete 3701; Laticrete International, Inc.
2. Alternate Manufacturers
 - a. Boiardi Products Corporation; a QEP company.
 - b. MAPEI Corporation.
 - c. Approved equal.

2.6 GROUTING MATERIALS

A. General: Provide grout materials which are compatible with substrates.

B. Epoxy Grout: ANSI A118.3, colors as selected by Commissioner. Provide epoxy grout on floor installations unless otherwise indicated.

C. Latex-Portland Cement Grout: ANSI A118.6, color as selected by Commissioner, with Laticrete 3701 by Laticrete International, Inc. Latex additive added at job site with dry grout mixture. Provide on wall installations, at agglomerated stone tile installations and where indicated.

1. Alternate Manufacturers
 - a. Boiardi Products Corporation; a QEP company.
 - b. MAPEI Corporation.
 - c. Approved equal.

D. Colors: Provide grout colors selected by the Commissioner.

2.7 WATERPROOF MEMBRANE

A. Waterproof Membrane for Thinset Applications: Membrane shall be a liquid applied rubber and reinforcing fabric forming a seamless membrane, and meeting the following requirements:

1. Water Permeability: None.

2. Elongation at Break (ASTM D 751): 30 percent, minimum.
3. Service Temperature: Minus 20 deg. F to 280 deg. F.
4. Tensile Strength: 2950 psi min.
5. Shear Strength: 350 psi min.
6. Acceptable Product: Laticrete 9235; Laticrete International, Inc., or an equal product acceptable to the Commissioner.

2.8 MISCELLANEOUS MATERIALS

- A. Tile Cleaner: Product acceptable to manufacturers of ceramic tile, stone tile and thresholds and grout and recommended by National Ceramic Tile Promotion Federation, 112 North Alfred St., Alexandria, VA 22134 or Ceramic Tile Institute, 700 N. Virgil Ave., Los Angeles, CA 90029.
- B. Elastomeric Sealants: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Section 07900 - Joint Sealers, including ASTM C 920 as referenced by Type, Grade, Class, and Uses.
 1. Provide all required materials for control and expansion joints as recommended in the TCNA handbook.
 2. Provide mildew resistant sealer as directed in non-traffic areas.

2.9 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 EXAMINATION

- A. Examine substrates and areas where tile will be installed, for compliance with requirements for proper installation. Proceed with installation after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Blending: For tile with color variations, verify that tile has been blended in factory and packaged accordingly. If not factory blended, return to manufacturer.
- B. Prior to installation of tiles, check tiles for flatness. If any tiles are found to be warped, tiles shall be rejected and provided with new tiles.
- C. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces:
 1. Grout release.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI A108 series of standards included under "American National Standard Specifications for the Installation of Ceramic Tile."
- B. TCNA Installation Guidelines: TCNA "Handbook for Ceramic Tile Installation"; comply with TCNA installation methods indicated.
- C. Extent: Extend tile into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Fitting: Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind exposed cut edges of tile for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.
 - 1. Prior to commencement of work review all installation conditions with Commissioner.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
 - 1. Make joints between mounted tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent.
- F. Expansion Joints: Locate expansion joints and other sealant-filled joints where indicated. Do not saw cut joints.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Provide expansion joint installations recommended in EJ171 Joint Design Essentials, TCNA Handbook.
- G. Grout: Grout tile to comply with the following standards:
 - 1. For latex-portland cement and sand-portland cement grout, comply with ANSI A108.10.

3.4 WATERPROOFING

- A. Waterproofing: Install waterproofing in compliance with waterproofing manufacturer's instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate.
 - 1. Liquid Applied Waterproofing: Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR INSTALLATION METHODS

- A. Ceramic Floor Tile: Install tile to comply with requirements indicated below for setting bed methods, TCNA installation methods related to types of subfloor construction, and grout types:
 - 1. Latex-Portland Cement Mortar: ANSI A108.5; for tile floors unless otherwise indicated.
 - a. Concrete Subfloor with Waterproof Membrane, Interior: TCNA F122; Thinset bond coat with waterproof membrane, modified to omit waterproofing membrane at areas approved by Commissioner and as indicated.

- 1) Grout: Epoxy grout, unless otherwise indicated; color as selected by Commissioner.
- B. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile.
1. Set thresholds in latex-portland cement mortar where mortar bed would otherwise be exposed above adjacent nontile floor finish.

3.6 WALL TILE INSTALLATION METHODS

- A. Ceramic and Agglomerated Stone Wall Tile: Install types of wall tile designated to comply with requirements indicated below for setting-bed methods, and TCNA installation methods related to subsurface and grout.
- B. Latex-Portland Cement Mortar: ANSI A108.5.
1. Cementitious Backer Units, Interior: TCNA W244.
 2. Grout: Latex-portland cement grout; color as selected by Commissioner.
- C. Turn edge of waterproofing membrane up onto wall surface to receive tile base with thin set application; waterproofing shall terminate at top of base, 3 inches minimum, as indicated.
- D. Install latex grout in accordance with ANSI A108.10.

3.7 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all tile surfaces so they are free of foreign matter.
1. Tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, and plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. Protection:
1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Masonite or other heavy covering during construction period to prevent damage and wear.
 2. Prohibit foot and wheel traffic from using tiled floors for at least 3 days after grouting is completed.
 3. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

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SECTION 09 51 13 – ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide acoustical panel ceilings in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Acoustical panel ceilings, as indicated.
 2. Suspension systems, as indicated.
 3. Removal, replacement and reinstallation of suspension and panels.

1.2 SUBMITTALS

- A. Samples for Verification: Submit full size samples of each suspension member, tile pattern and color required.
- B. Shop Drawings: Submit details and reflected ceiling plans of acoustical tile ceilings. Coordinated with mechanical, electrical and other work related to acoustical tile ceiling. Show suspension system and anchorage methods.
- C. Manufacturer's Data: Submit manufacturer's specifications and installation instructions for each acoustical material, suspension system and other products required, including certified laboratory test reports and other data as may be required to show compliance with the Documents.

1.3 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. Single-Source Responsibility: Obtain each type of acoustical ceiling unit and suspension 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. Coordination of Work: Coordinate layout and installation of acoustic ceiling units and suspension systems components with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, partition system and fire suppression system components.
- D. Fire Performance Characteristics: Provide acoustical units with the following fire performance characteristics. Identify acoustical ceiling components with appropriate marking of applicable testing and inspecting agency.
1. Surface Burning Characteristics: As follows, tested per ASTM E 84.
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
- E. Comply with the requirements of the NYC Building Code, and other authorities having jurisdiction at Project location.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.5 PROJECT CONDITIONS

- A. Space Enclosure: Do not install interior acoustical ceilings until wet work is complete and temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.6 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of ten (10) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Acoustical Panel Ceiling Schedule at the end of Part 3.

2.2 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
 - 1. Mounting Method for Measuring Noise Reduction Coefficient: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
 - 1. Where appearance characteristics of acoustical panels are indicated by referencing ASTM E 1264 pattern designations and not manufacturers' proprietary product designations, provide products selected by Commissioner from each manufacturer's full range of products that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.
 - 2. Replacement units shall match existing adjoining panels.
- C. Antimicrobial Treatment: Provide acoustical panels treated with manufacturer's standard antimicrobial solution consisting of a synergistic blend of substituted ammonium salts of alkylated phosphoric acids admixed with free alkylated phosphoric acid that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria.
- D. Panel Characteristics: Comply with requirements indicated in the Acoustical Panel Ceiling Schedule at the end of Part 3, including those referencing ASTM E 1264 classifications.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements. Comply with the requirements of the New York City Building Code and other authorities having jurisdiction.
- B. Metal Suspension System Characteristics: Comply with requirements indicated in the Acoustical Panel Ceiling Schedule at the end of Part 3.
- C. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
 - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- D. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Indirect Hung unless otherwise indicated.
 - 1. Cast-In-Place and Postinstalled Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attachment of hangers of type indicated and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.
 - 2. 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 attachment of hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing laboratory.
- E. Braces and Ties: Zinc-coated carbon-steel wire, unless otherwise indicated; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
- F. Hangers: Mild steel rods or flats, zinc coated, or protected with rust-inhibitive paint.
- G. Angle Hangers: Angles with legs not less than 7/8 inch wide, formed with 0.0365-inch-thick galvanized steel sheet complying with ASTM A 446, Coating Designation G90, with bolted connections and 5/16-inch-diameter bolts.
- H. Edge Moldings and Trim: Metal of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
 - 1. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
 - 2. Provide reveal shadow moldings for public spaces, unless otherwise indicated.
- I. Hold-Down Clips for Non-Fire-Resistance-Rated Ceilings: For interior ceilings consisting of acoustical panels weighing less than 1 lb/sq. ft., provide hold-down clips spaced 24 inches on center on all cross tees.

2.4 MISCELLANEOUS MATERIALS

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
 - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. PL Acoustical Sealant; Chemrex, Inc., Contech Brands.
 - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
 - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.
 - d. Approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other Sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.
- B. Measure each ceiling area and establish layout of acoustical units using centering lines shown on the Drawings. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical ceiling systems to comply with installation standard below per manufacturer's instructions and CISCA "Ceiling Systems Handbook."
 - 1. Standard for Installation of Ceiling Suspension Systems: Comply with ASTM C 636.
 - 2. Ceiling suspension system and installation shall comply with requirements of the NYC Building Code and other authorities having jurisdiction at location of Project.
- B. Arrange acoustical units and orient directionally patterned units (if any) in manner shown by reflected ceiling plans.
 - 1. Install tile with pattern running in one direction, unless otherwise indicated.
- C. Suspend ceiling hangers from building structural members and 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 ceiling suspension system. 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 the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 3. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 4. Do not support ceilings directly from permanent metal forms.
 5. Space hangers not more than 4 feet on center along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
1. Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing mouldings.
 2. Screw attach mouldings to substrates at intervals not more than 16 inches on center and not more than 8 inches from ends, leveling with suspension system to tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
- E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing agency to perform field quality-control testing.
- B. Extent and Testing Frequency: Testing will take place in successive stages in areas described below. Proceed with installation of acoustical panel ceilings only after test results for previously installed hangers comply with requirements.
1. Extent of Each Test Area: When installation of ceiling suspension systems on each floor has reached 20 percent completion but no panels have been installed.
 2. Within each test area, testing agency will select one of every 10 powder-actuated fasteners and postinstalled anchors used to attach hangers to concrete and will test them for 200 lbf of tension; it will also select one of every two postinstalled anchors used to attach bracing wires to concrete and will test them for 440 lbf of tension.
 3. When testing discovers fasteners and anchors that do not comply with requirements, testing agency will test those anchors not previously tested until 20 consecutively pass and then will resume initial testing frequency.
- C. Testing agency will report test results promptly and in writing to Contractor and Commissioner.
- D. Remove and replace those fasteners and anchors that test results indicate do not comply with specified requirements.

- E. Additional Testing: Where fasteners and anchors are removed and replaced, additional testing will be performed to determine compliance with specified requirements.

3.5 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.6 ACOUSTICAL PANEL CEILING SCHEDULE

- A. AT 5, Water-Felted, Mineral-Base Acoustical Panel Ceiling: Where this designation is indicated, provide acoustical panels, treated with antimicrobial solution, and complying with the following:

1. Products: Ultima panels, Model #1912 and #1915 as manufactured by Armstrong Corporation, Mars ClimaPlus panels, Model #86785 and #88785, as manufactured by USG Corporation, or an approved equal product.
 - a. Classification: Provide panels complying with ASTM E 1264 for Type IV, mineral base with membrane-faced overlay; Form 2, water felted.
 - 1) Overlay: Fiberglass-fabric overlay on face.
 - 2) Select or insert at least one pattern designation from options in subparagraph below. Pattern (Ultima): E (lightly textured).
 - 3) Pattern (ClimaPlus): G (smooth).
 - b. Color: White, unless otherwise indicated.
 - c. LR: Not less than 0.85.
 - d. NRC: Not less than 0.70.
 - e. CAC: Not less than 35.
 - f. Edge Detail: Beveled tegular edge.
 - g. Thickness: 3/4 inch.
 - h. Size: 24 by 24 inches and 24 by 48 inches, as indicated.

- B. AT 6, Glass-Fiber-Base Acoustical Panels with Membrane-Faced Overlay: Where this designation is indicated, provide acoustical panels complying with the following:

1. Products: Optima Open Plan panels, Model #3251 and #3257 as manufactured by Armstrong World Industries, Inc., Mars ClimaPlus High NRC panels, Model #86232 and custom size as manufactured by USG Corporation, or an approved equal product.
 - a. Classification: Panels fitting ASTM E 1264 for Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth.
 - 1) Pattern (Optima): E (lightly textured).
 - 2) Pattern (Mars): G (smooth).
 - b. Color: White, unless otherwise indicated.
 - c. LR: Not less than 0.89.
 - d. NRC Range: 0.80 - 0.90.
 - e. CAC: Not less than 37.
 - f. Edge Detail: Square tegular edge.
 - g. Thickness: 1 inch.
 - h. Size: 24 by 24 inches and 24 by 48 inches, as indicated.

- C. AT 7, Glass-Fiber-Base Acoustical Panels with Membrane-Faced Overlay: Where this designation is indicated, provide acoustical panels complying with the following:

1. Products: Optima Open Plan panels, custom sized as indicated, as manufactured by Armstrong World Industries, Inc., Mars ClimaPlus, High NRC panels, custom sized as indicated, as manufactured by USG Corporation, or an approved equal product.
 - a. Classification: Panels fitting ASTM E 1264 for Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth.
 - 1) Pattern (Optima): E (lightly textured).
 - 2) Pattern (Mars): G (smooth).
 - b. Color: White, unless otherwise indicated.
 - c. LR: Not less than 0.89.
 - d. NRC Range: 0.80 - 0.90.
 - e. CAC: Not less than 37.
 - f. Edge Detail: Square tegular edge.
 - g. Thickness: 1 inch.
 - h. Size: 24 by 60 inches, as indicated.

- D. AT 8, Glass-Fiber-Base Acoustical Panels with Membrane-Faced Overlay: Where this designation is indicated, provide acoustical panels complying with the following:
 1. Products: Optima Open Plan panels, Model #3154, as manufactured by Armstrong World Industries, Inc., Mars ClimaPlus, High NRC panels, Model #86212, as manufactured by USG Corporation, or an approved equal product.
 - a. Classification: Panels fitting ASTM E 1264 for Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth.
 - 1) Pattern (Optima): E (lightly textured).
 - 2) Pattern (Mars): G (smooth).
 - b. Color: White, unless otherwise indicated.
 - c. LR: Not less than 0.89.
 - d. NRC Range: 0.80 - 0.90.
 - e. CAC Range: 25 - 29.
 - f. Edge Detail: Square edge.
 - g. Thickness: 1 inch.
 - h. Size: 48 by 96 inches, as indicated.

- E. AT 9, Water-Felted, Mineral-Base Acoustical Panel Ceiling: Where this designation is indicated, provide acoustical panels, treated with antimicrobial solution, and complying with the following:
 1. Products: Dune, Model #1775 and #1777 ceiling panels, as manufactured by Armstrong World Industries, Inc., Olympia Micro ClimaPlus, Model #4230 and #4430, as manufactured by USG Corporation, or an approved equal product.
 - a. Classification: Panels fitting ASTM E 1264 for Type III, mineral base with painted finish; Form 2, water felted.
 - 1) Pattern: CE (perforated, small holes and lightly textured).
 - b. Color: White.
 - c. Light Reflectance Coefficient: LR 0.83.
 - d. Noise Reduction Coefficient: NRC 0.50.
 - e. Ceiling Attenuation Class: CAC 35.
 - f. Edge Detail: Beveled tegular edge.
 - g. Thickness: 5/8 inch.
 - h. Size: 24 by 24 inches and 24 by 48 inches, as indicated.

- F. Suspension System for Acoustical Panel Ceilings AT 5, AT 6 and AT 7: Where these designations are indicated, provide acoustical panel ceiling suspension system complying with the following:
1. Products: Finline DXF Narrow Face/ Reveal as manufactured by USG Corporation, Silhouette XL as manufactured by Armstrong Corporation, or an approved equal product.
 2. Narrow-Face, Uncapped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized, to produce structural members with 9/16-inch-wide faces.
 - a. Structural Classification: Intermediate-duty system.
 - b. Face Design: With 1/4-inch-wide, slotted, box-shaped flange.
 - c. Face Finish: White.
 - d. Reveal Finish: Painted to match flange color.
 - e. Accent Strip Color: Color other than flange color as selected from manufacturer's full range of accent strip colors.
- G. Suspension System for Acoustical Panel Ceilings AT 8: Where this designation is indicated, provide acoustical panel ceiling suspension system complying with the following:
1. Products: Prelude XL wide face exposed tee grid as manufactured by Armstrong Corporation, or an approved equal product.
 2. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16-inch-wide metal caps on flanges.
 - a. Structural Classification: Intermediate-duty system.
 - b. End Condition of Cross Runners: Override (stepped) type.
 - c. Face Design: Flat, flush.
 - d. Cap Material: Steel cold-rolled sheet.
 - e. Cap Finish: Custom color, as selected by Commissioner.
- H. Suspension System for Acoustical Panel Ceilings AT 9: Where this designation is indicated, provide acoustical panel ceiling suspension system complying with the following:
1. Products: Suprafine XL narrow face exposed tee grid as manufactured by Armstrong Corporation, or an approved equal product.
 2. Narrow-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/653M, not less than G30 coating designation, with prefinished 9/16-inch-wide metal caps on flanges.
 - a. Structural Classification: Intermediate-duty system.
 - b. End Condition of Cross Runners: Override (stepped) type.
 - c. Face Design: Flat, flush.
 - d. Cap Material: Steel cold-rolled sheet.
 - e. Cap Finish: Custom color, as selected by Commissioner.

END OF SECTION 09 51 13

SECTION 09 51 14 - SECURITY CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide security ceilings in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Removal of existing metal panel security ceiling, including access doors, and damaged and deteriorated suspension system.
 2. Suspension system components as necessary to restore existing system.
 3. Metal panel ceilings, factory finished.
 4. Replacement of existing access doors in security ceilings.
 5. Installation of additional access doors in security ceilings, as indicated.

1.2 QUALITY ASSURANCE

- A. References: Applicable trade association names and titles of general standards are referred to by accepted abbreviations.
- B. Coordination of Work: Coordinate layout and installation of security ceiling units and suspension systems with other work supported by or penetrating security ceilings.
- C. Manufacturer: The manufacture or supplier fabricating the material or equipment described in this section must, within the last three (3) consecutive years, have successfully completed in a timely fashion, projects similar in scope and type to the required work.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, standard details and installation instructions for security ceilings. Submit other data required to show compliance with these Specifications.
- B. Shop Drawings: Submit reflected ceiling plans of security ceilings before proceeding with Work. Include details of joints, edges, trim, suspension system and other pertinent data. Show adjacent construction and its interface with the Work of this Section. Show locations of items of Work which are to be coordinated with the security ceilings and indicated adjacent and interfacing construction.
1. Submit shop drawings at a scale of 1/8 inch equals 1 foot.
- C. Samples: Submit a set of 12 inch square samples of finished ceiling panels. Submit 12 inch long samples of related items upon request.
- D. Test Data: Submit test data from a qualified testing agency to show compliance with specified performance criteria.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ceiling units in original, unopened packages and store them in a fully enclosed space where they will be protected against damage, staining and deterioration.
- B. Handle ceiling units carefully to avoid damaging units.

1.5 PROJECT CONDITIONS

- A. Comply with the manufacturer's instructions with regard to building enclosure, heat and ventilation.
- B. Do not install security ceilings until work above ceilings is complete. Make allowance for required inspections.

1.6 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of ten (10) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer and Product: The existing security ceilings are NYC 16 R Series planks as manufactured by Wilsecure/Wildeck; provide new ceiling components from this Series or match existing ceiling assembly with metal panels, suspension system and components by one of the following manufacturers:
 - 1. Epic Metals Corp.
 - 2. Gordon, Inc., Corrections Division.
 - 3. I. A. C. Security Ceilings.
 - 4. Approved equal.

2.2 SECURITY CEILING PANELS

- A. Performance Criteria: Provide acoustical security ceilings that meet the following minimum criteria:
 - 1. NRC Range 0.95-1.05, in accordance with ASTM C 423 when tested to comply with ASTM E 795, Type E-400 Mounting.
 - 2. STC Range 40-44, according to ASTM E 413.
- B. Ceiling Panels, AT 1: Where this designation is indicated, provide acoustical metal panels of sizes shown, consisting of not less than 16 gage perforated steel panels with plastic encased fiberglass fill. Provide non-perforated stainless steel face panels at areas indicated on schedule.
 - 1. Stainless Steel Sheets: Commercial-quality stainless steel, AISI Type 304, 16 gage, with face flatness within L/240. Provide internal reinforcing for face panels, as required for live load and for flatness.
 - a. Perforations: Provide perforation pattern having 0.125 inch dia. holes staggered 1/8 inch on 7/32 inch o.c. with a 29 percent open area, unless otherwise indicated or selected by Commissioner, match approved samples.
 - b. Planks: 18 inches wide by up to 12 feet long, as required, by manufactured depth, unless otherwise indicated or selected by Commissioner; match approved samples.
 - 2. Acoustical Fill: Provide polyethylene encapsulated sound absorption fiberglass insulation 3 inches thick and sized to fit ceiling planks.
 - 3. Backer Panel: 22 gage galvanized required for STC rating specified.
 - 4. Provide new panels required by replacement and reinstallation.

- C. Panel Penetrations: Metal panel design shall allow penetration for air handling assemblies, lighting assemblies, sprinkler piping, communication systems and access doors. Penetrations shall not span the joint of two panels. If penetration must span panel joint, a molding shall be installed to seal the panel at the joints. All fasteners shall be tamperproof.
- D. Access:
 - 1. Access doors shall be provided for immediate emergency access. Doors shall be heavy duty, key locked and provided with a framing system equal to the security level of the system. Access doors shall not penetrate the joint of two panels.
 - 2. Provide Folger Adams, 17-M latch with 17-4 keeper, keyed to building lock system. Use galvanized finish in stainless steel panel.

2.3 SUSPENSION SYSTEM

- A. General: Provide a security ceiling support system capable of withstanding a live load of 40 psf, upward or downward.
- B. Support System: Supports shall be heavy duty aluminum angle or "T" shapes. Rod and wire are not permitted. Security closures shall hold panels tightly in place. Exposed fasteners are not permitted.
- C. Hangers/ Supports: ASTM A 36; 2 inch by 2 inch by 1/4 inch steel angles, painted.
- D. Fasteners: Tamperproof type as recommended by the panel manufacturer, of galvanized steel per ASTM A 153.

2.4 FABRICATION

- A. Fabricate panels accurately to size, with encased fiberglass fill. Assemble perforated face panels and unperforated back panels with continuous mechanically interlocked edges.
- B. Finish: Panels and all components of the suspension system visible from the floor side shall be painted polyester powder epoxy, color to match approved samples.
 - 1. Finish shall have passed a salt spray test of 1000 hours per ASTM B 117.
 - 2. Finish shall have passed humidity test of 1000 hours per ASTM D 2247.

PART 3 - EXECUTION

3.1 DEMOLITION

- A. General: Remove existing ceiling panels in their entirety. Remove damaged and deteriorated existing suspension system components. Refer to Division 02 Section "Selective Demolition" for additional requirements related to removal of existing ceiling and damaged and deteriorated suspension system components.

3.2 PREPARATION

- A. Inspection: Examine adjacent construction and conditions that may affect this Work. Proceed with the Work after unsatisfactory conditions have been corrected.
 - 1. Refer to the current edition of "ACOUSTICAL CEILINGS: USE AND PRACTICE" published by CISCA.

- B. Coordination: Furnish layouts for inserts, clips, or other supports to be installed by other trades for support of security ceilings. Coordinate installation with other adjacent work.
- C. Field Measurements: Measure each ceiling area and establish layout of units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders.

3.3 INSTALLATION, GENERAL

- A. Install ceiling materials in accordance with manufacturer's printed instructions, and to comply with governing regulations.
- B. Install suspension systems to support ceilings with a deflection limit of 1/240 between supports, and level within 1/8 inch in 10 feet.
- C. Install hangers plumb and free from contact with objects within ceiling plenum which are not part of ceiling suspension system. Splay hangers only to miss obstructions and offset resulting horizontal force by bracing, or other equally effective means.
- D. Install auxiliary frames and framing as required for support of ceiling, light fixtures and other work supported at ceiling.
- E. Install access doors at locations indicated and as required, provide access door installation having a security level equal to or exceeding ceiling system; provide security level in excess of ceiling system as required by Commissioner and authorities having jurisdiction.

3.4 INSTALLATION, METAL PANEL CEILINGS

- A. Installation of acoustical metal panels shall not begin until residual moisture is dissipated. The building shall be fully enclosed and permanent heating and cooling equipment shall be in operation.
- B. Neatly cut and reinforce all openings in metal panels to allow for field conditions. Reinforce cuts to protect insulation and insure structural, security and acoustical integrity of panels.
- C. Install wall angles accurately to required levels and securely bolt to wall construction. Provide expansion joints not more than 30 feet on centers.
- D. Install ceiling access doors where shown or required. Comply with recommendations of the access door manufacturer.

3.5 CLEAN-UP

- A. Clean exposed surfaces of security ceilings, including wall angles. Touch-up of minor finish damage.
- B. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- C. Remove all debris resulting from this work.

END OF SECTION 09 51 14

SECTION 09 65 00 – RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide resilient flooring in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Cutting and patching of existing resilient flooring finishes and substrates to accommodate the Work of this Project, including the following:
 - a. Vinyl composition tile.
 - b. Vinyl wall base.
 - c. Miscellaneous accessories.

1.2 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with not less than 3 years of production experience, whose published literature clearly indicates general compliance of products with requirements of this section.
- B. Installer Qualifications: Firm specializing in resilient flooring installation with not less than 2 years of experience in installation of resilient flooring similar to that required for this project.
- C. Single Source Responsibility: Provide resilient flooring produced by a single manufacturer for each type required, including adhesives.
- D. Fire Test Performance: Provide resilient flooring which complies with the following performance criteria, as determined by an independent testing laboratory acceptable to authorities having jurisdiction.
1. Critical Radiant Flux (CRF): Not less than 0.45 watts per sq. cm. per ASTM E 648.
 2. Smoke Density: Not more than 450 as per ASTM E 662.

1.3 SUBMITTALS

- A. Product Data, Samples and Maintenance Data: Submit all information necessary for evaluating, furnishing and installing this work. Submit fire test data.
1. Certification by tile manufacturer that products supplied for tile installation comply with local regulations controlling use of volatile organic compounds (VOC's).
- B. Samples for Initial Selection: Submit manufacturer's standard colors in the form of actual sections of resilient flooring, including accessories, showing full range of colors and patterns.
- C. Samples for Verification: Submit the following samples of each type, color, and pattern of resilient flooring required, showing full-range of color and pattern variations.
1. Two 12 inch by 12 inch samples of tile.
 2. 12 inch long sections of resilient flooring accessories.
 3. Other materials as requested.
- D. Maintenance Instructions: Submit manufacturer's recommended practices for maintaining each type of resilient flooring required.

1.4 PROJECT CONDITIONS

- A. Maintain minimum temperature of 65 degrees F in spaces to receive resilient flooring. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before installation.
- B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed.

1.5 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of five (5) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include the following:
 - 1. Resilient Flooring and Accessories:
 - a. Armstrong World Industries
 - b. Azrock Floor Products Div., Azrock Industries, Inc.
 - c. Tarkett Inc.
 - d. Kentile Floors, Inc.
 - e. Roppe Corporation.
 - f. Approved equal.

2.2 VINYL COMPOSITION TILE

- A. Vinyl Composition Tile General: Products complying with ASTM F 1066, as scheduled at the end of this Section.

2.3 ACCESSORIES

- A. Vinyl Wall Base: Products complying with ASTM F 1861, Type TV, Group 2, as scheduled at the end of this Section.
- B. Resilient Edge Strips: 1/8 inch thick, homogeneous vinyl or rubber composition, tapered edge, not less than 1 inch wide.
- C. Feature Strips and Borders: As scheduled or as selected by Commissioner. Provide inlaid borders and other accessories as selected.

2.4 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.
 - 1. Levelex by L&M Construction Chemicals, Inc.
 - 2. K-55 by Ardex, Inc.
 - 3. Skimcrete by Burke Co.
 - 4. Approved equal.

- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine subfloor surfaces to determine that they are smooth and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance.
- B. Perform bond and moisture tests on concrete subfloors to determine if surfaces are sufficiently dry and suitable.

3.2 PREPARATION

- A. Prepare concrete subfloor surfaces as follows:
 - 1. Use leveling and patching compound for filling small cracks, holes and depressions in subfloors. Also use to build up floor thickness at intersections with adjoining floor finishes. Install in strict accordance with the manufacturer's requirements.
 - 2. Remove coatings from subfloor surfaces that would prevent adhesive bond, including existing adhesive, paint, oils, waxes and sealers.
- B. Broom clean or vacuum surfaces to be covered, and inspect subfloor.
- C. Apply primer, if recommended by flooring manufacturer, in compliance with manufacturer's directions.

3.3 INSTALLATION

- A. Install resilient flooring and accessories using method indicated in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings. Install resilient base continuous along entire wall lengths, with a minimum of joints between lengths of base.
- B. Scribe, cut and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.
- C. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.
- D. Install resilient flooring on flush covers and similar items occurring within finished floor areas to remain concealed. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers. Tightly cement edges to perimeter of floor around covers and to covers.
- E. Tightly cement resilient flooring, treads and accessories to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll at perimeter of each covered area to assure adhesion.

3.4 INSTALLATION OF TILE FLOORS

- A. Lay tile square to room axis. Cut tile neatly around all fixtures.
- B. Match tiles for color by using tile from cartons in same sequence as manufactured and packaged if so numbered. Damaged or defective tiles are not acceptable.
- C. All tiles shall be laid in the same direction.
- D. Layout: As indicated on drawings.

3.5 CLEANING AND PROTECTION

- A. Perform following operations after installation of resilient flooring:
 - 1. Sweep or vacuum floor thoroughly.
 - 2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive.
 - 3. Damp-mop floor to remove marks and excessive soil.
 - 4. Remove any excess adhesive or other surfaces blemishes, using cleaner as recommended by resilient flooring manufacturer.
- B. Protect flooring against damage during construction period to comply with resilient flooring manufacturer's directions.
 - 1. Apply protective floor polish to resilient flooring surfaces free from soil, excess adhesive or surfaces blemishes. Use commercially available product acceptable to resilient flooring manufacturer.
 - 2. Protect resilient flooring against damage for initial period following installation by covering with plywood or hardboard. Use dollies to move materials across floors.
 - 3. Cover resilient flooring with undyed, untreated building paper until inspection for Substantial Completion.

3.6 RESILIENT FLOORING SCHEDULE

- A. Products: Where the following designations are indicated, provide resilient flooring and accessories complying with the following:
- B. Tile: Provide Premiere Series, 12 inch by 12 inch by 1/8 inch thick Vinyl Composition Tile, as manufactured by Azrock Commercial Flooring, or equal products acceptable to the Commissioner. Provide tile in the colors indicated:
- C. Wall Base: Provide Vinyl Wall Base, 4 inches high by 1/8 inch thick, as manufactured by Azrock Commercial Flooring, or equal products acceptable to the Commissioner. Provide wall base in the colors indicated:

END OF SECTION 09 65 00

SECTION 09 91 00 – PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Included: Provide painting in accordance with the Contract Documents. The "General Conditions" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:
1. Surface preparation and field painting of exposed interior items and surfaces.
 - a. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Commissioner will select from standard colors and finishes available.
1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
1. Prefinished items include the following factory-finished components:
 - a. Architectural woodwork.
 - b. Acoustical wall panels.
 - c. Metal toilet enclosures.
 - d. Metal lockers.
 - e. Unit kitchens.
 - f. Elevator entrance doors and frames.
 - g. Elevator equipment.
 - h. Finished mechanical and electrical equipment.
 - i. Light fixtures.
 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Furred areas.
 - b. Ceiling plenums.
 - c. Pipe spaces.
 - d. Duct shafts.
 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.2 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.3 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
 1. Material List: 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. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Initial Selection: For each type of finish-coat material indicated.
 1. After color selection, Commissioner will furnish color chips for surfaces to be coated.
- C. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
 3. Submit Two (2) Samples on the following substrates for Commissioner's review of color and texture only:
 - a. Concrete: 4-inch-square Samples for each color and finish.
 - b. Concrete Unit Masonry: 4-by-8-inch Samples of masonry, with mortar joint in the center, for each finish and color.
 - c. Painted Wood: 12-inch-square Samples for each color and material on hardboard.
 - d. Stained or Natural Wood: 4-by-8-inch Samples of natural- or stained-wood finish on representative surfaces.
 - e. Ferrous Metal: 4-inch-square Samples of flat metal and 6-inch-long Samples of solid metal for each color and finish.

- D. Qualification Data: For Applicator.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
 - 1. Commissioner will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft
 - b. Small Areas and Items: Commissioner will designate items or areas required.
 - 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, Commissioner will use the room or surface to evaluate coating systems of a similar nature.
 - 3. Final approval of colors will be from benchmark samples.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.6 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.7 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Commissioner.
 - 1. Quantity: Furnish Commissioner with an additional 3 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

1.8 WARRANTY

- A. The Contractor hereby guarantees that all work specified in this Section will be free from defects of materials and workmanship for a period of two (2) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide the products listed in Schedules at the end of this Section, or equals by one of the following, acceptable to the Commissioner:
 - 1. Benjamin Moore & Co.
 - 2. Euclid Chemical Company.
 - 3. ICI Paint Stores, Inc.
 - 4. Kelly-Moore Paint Co.
 - 5. M. A. Bruder & Sons, Inc.
 - 6. PPG Industries, Inc.
 - 7. Sherwin-Williams Co.
 - 8. Tnemec Company, Inc.
 - 9. Approved equal.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: As scheduled; if not scheduled, as selected by Commissioner from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Commissioner about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel 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.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

- a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
4. Ferrous Metals: Clean ungalvanized 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 SSPC's recommendations.
- a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3, and SSPC-SP 10/NACE No. 2, unless otherwise indicated.
 - 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.
5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of 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.

3.3 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.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
 2. Uninsulated plastic piping.
 3. Pipe hangers and supports.
 4. Tanks that do not have factory-applied final finishes.
 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:

1. Switchgear.
 2. Panelboards.
 3. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by 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.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- L. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. Commissioner reserves the right to invoke the following test procedure at any time and as often as Commissioner deems necessary during the period when paint is being applied:
1. Engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 2. Testing agency will perform appropriate tests for the following characteristics as required by Commissioner:
 - a. Dry film thickness.
 3. Commissioner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Commissioner.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 INTERIOR PAINT SCHEDULE

- A. Basis of Design General: Provide the following Carboline, M. A. Bruder, Tnemec, Inc. and Benjamin Moore interior paint systems, as indicated, or equal by other specified manufacturers, of color as scheduled or as selected by the Commissioner.
- B. Interior Wood:
 1. (P-3) Flat Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Flat, 040 line; M. A. Bruder & Sons, Inc.
 2. (P-4) Eggshell Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Eggshell, 045 line; M. A. Bruder & Sons, Inc.
 3. (P-5) Semigloss Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Semi-Gloss, 047 line; M. A. Bruder & Sons, Inc.
- C. Concrete Masonry Units:
 1. (P-6) Flat Finish/ Vinyl Acrylic Latex:
 - a. Block Filler: Block Kote #2000; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Flat, 040 line; M. A. Bruder & Sons, Inc.
 2. (P-7) Eggshell Finish/ Vinyl Acrylic Latex:
 - a. Block Filler: Block Kote #2000; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Eggshell, 045 line; M. A. Bruder & Sons, Inc.

3. (P-8) Semi-Gloss Finish/ Vinyl Acrylic Latex:
 - a. Block Filler: Block Kote #2000; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Latex Semi-Gloss, 047 line; M. A. Bruder & Sons, Inc.
 4. (P-9) High Gloss Finish/ Polyamine Epoxy (Spray-Applied):
 - a. Prime Coat: 1 coat (12 mil dft) Hippo-Poxy 52 Series High Build Epoxy; M. A. Bruder & Sons, Inc.
 - b. Finish: 1 coat (6 mil dft) Hippo-Poxy 52 Series High Build Epoxy; M. A. Bruder & Sons, Inc.
 5. (P-10) High Gloss Finish/ Polyamine Epoxy (Roller-Applied):
 - a. Block Filler: Block Kote #2000; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats (6 mil dft each coat) Hippo-Poxy 52 Series High Build Epoxy; M. A. Bruder & Sons, Inc.
 6. (P-11) High Gloss Finish/ Acrylic Epoxy:
 - a. Block Filler: Block Kote #2000; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats (2 mil dft each coat) Ply-Tile 530 Water Reducible Acrylic Epoxy, 054 Line; M. A. Bruder & Sons, Inc.
- D. Gypsum Drywall and Plaster:
1. (P-12) Flat Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Flat, 040 line; M. A. Bruder & Sons, Inc.
 2. (P-13) Eggshell Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Eggshell, 045 line; M. A. Bruder & Sons, Inc.
 3. (P-14) Semigloss Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Enviro-Pure Primer, 037-195; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Semi-Gloss, 047 line; M. A. Bruder & Sons, Inc.
 4. (P-15) Semi-Gloss Finish/ Acrylic Epoxy:
 - a. Prime: Rich Lux Latex Enamel Undercoater, 037 Line; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats (2 mil dft each coat) Ply-Tile 530 Water Reducible Acrylic Epoxy, 051 Line; M. A. Bruder & Sons, Inc.
 5. (P-16) High Gloss Finish/ Polyamine Epoxy (Spray-Applied):
 - a. Prime: Rich Lux Latex Enamel Undercoater, 037 Line; M. A. Bruder & Sons, Inc.
 - b. 2nd Coat: 1 coat (12 mil dft) Hippo-Poxy 52 Series High Build Epoxy, 054 Line; M. A. Bruder & Sons, Inc.
 - c. 3rd Coat: 1 coat (6 mil dft) Hippo-Poxy 52 Series High Build Epoxy; M. A. Bruder & Sons, Inc.

6. (P-17) High Gloss Finish/ Polyamine Epoxy (Roller-Applied):
 - a. Prime: Rich Lux Latex Enamel Undercoater, 037 Line; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats (6 mil dft each coat) Hippo-Poxy 52 Series High Build Epoxy; M. A. Bruder & Sons, Inc.

7. (P-18) High Gloss Finish/ Acrylic Epoxy:
 - a. Prime: Rich Lux Latex Enamel Undercoater, 037 Line; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats (2 mil dft each coat) Ply-Tile 530 Water Reducible Acrylic Epoxy, 054 Line; M. A. Bruder & Sons, Inc.

- E. Cast-In-Place Concrete:
 1. (P-20) Flat Finish/ Vinyl Acrylic Latex:
 - a. Filler Coat: Wall and Wood Primer, B49WZ2; Sherwin-Williams Co.
 - b. Finish: Super Save-Lite Dryfall, Flat; Sherwin-Williams Co.

 2. (P-21) Semi-Gloss Finish/ Water-Base Epoxy:
 - a. Prime Coat: Acrylic Enamel Undercoat, 04-123; Duron Paints and Wall Coverings.
 - b. Finish: 2 Coats Dura Clad Acrylic Epoxy, Duron Series 95-076; Duron Paints and Wall Coverings.

 3. (P-22) Semi-Gloss Finish/ Acrylic Epoxy:
 - a. Prime Coat and Finish: 2 coats (2 mil dft each coat) Ply-Tile 530 Water Reducible Acrylic Epoxy, 051 Line; M. A. Bruder & Sons, Inc.

 4. (P-23) Sealer: One coat of Floor Seal VOX acrylic floor sealer; Euclid Chemical Company.

- F. Metal, Ferrous:
 1. (P-27) Flat Finish/ Cycloaliphatic Amine Epoxy:
 - a. Prime Coat: Refer to Division 5 Sections for material requirements of standard primer applied to structural steel and other miscellaneous metal fabrications to receive this finish system.
 - b. Finish: 2 coats Carbomastic 15; Carboline Company.

 2. (P-28) Eggshell Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Rust-O-Lastic Hydro-Prime II, 073-189; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Eggshell, 047 line; M. A. Bruder & Sons, Inc.

 3. (P-29) Semigloss Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Rust-O-Lastic Hydro-Prime II, 073-189; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Semi-Gloss, 047 line; M. A. Bruder & Sons, Inc.

4. (P-30) High Gloss Finish/ Acrylic Latex:
 - a. Prime Coat: Rust-O-Lastic Hydro Prime II, 073-189; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Rust-O-Lastic DTM, 043 line; M. A. Bruder & Sons, Inc.

5. (P-31) High Gloss Finish/Alkyd:
 - a. Prime Coat: Rust inhibitive alkyd, IronClad Retardo Rust Inhibitive Paint #163; Benjamin Moore & Co.
 - b. Finish: 2 coats Impervo Enamel #133; Benjamin Moore & Co.

- G. Metal, Galvanized:
 1. (P-32) Semigloss Finish/ Vinyl Acrylic Latex:
 - a. Prime Coat: Rust-O-Lastic Hydro-Prime II, 073-189; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Enviro-Pure Acrylic Latex Semi-Gloss, 047 line; M. A. Bruder & Sons, Inc.

 2. (P-33) High Gloss Finish/ Acrylic Latex:
 - a. Prime Coat: Rust-O-Lastic Anti-Corrosive Primer, 073-444; M. A. Bruder & Sons, Inc.
 - b. Finish: 2 coats Rust-O-Lastic DTM, 043 line; M. A. Bruder & Sons, Inc.

END OF SECTION 09 91 00

SECTION 21 00 02 – FIRE PROTECTION SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the fire protection systems as called for in the contract documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

1.3 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Commissioner, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the Commissioner, to the satisfaction of the Commissioner and Engineer. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.
- C. Indemnify the City of New York and the Commissioner against loss, liability, damage or expense, including attorneys' fees, in connection with any claim resulting from damage which may be asserted by any third party.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of EPA, U.L. and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.

1.5 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations

1. AABC American Assoc. of Balancing Contractors
2. ABMA American Boiler Manufacturers Association
3. ADC Air Diffusion Council
4. AGA American Gas Assoc.
5. AMCA Air Movement and Control Association
6. ANSI American National Standards Institute
7. ARI Air Conditioning and Refrigeration Institute
8. ASA Acoustical Society of America
9. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers
10. ASME American Society of Mechanical Engineers
11. ASPE American Society of Plumbing Engineers
12. ASTM American Society For Testing and Materials
13. ASSE American Society of Sanitary Engineers
14. AWWA American Water Works Association
15. AWS American Welding Society
16. CTI Cooling Tower Institute
17. EPA Environmental Protection Agency
18. FM (FMS) Factory Mutual (Factory Mutual System)
19. FS Federal Specifications
20. IEEE Institute of Electrical and Electronic Engineers
21. NAPHCC National Association of Plumbing Heating & Cooling Contractors
22. NEBB National Environmental Balancing Bureau
23. NEC National Electric Code
24. NEMA National Electrical Manufacturers Association
25. NFPA National Fire Protection Association
26. OSHA Occupational Safety and Health Administration
27. SAE Society of Automotive Engineers
28. SMACNA Sheet Metal and Air Conditioning Contractors National Association
29. U.L. Underwriters Laboratories

B. Definitions

1. "PROVIDE" means to "Furnish" and "Install".
2. "INSTALL" means to join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York, complete and ready for regular operation, the particular work referred to.
3. "FURNISH" means to purchase and supply all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for the proper and complete application for the particular work referred to.
4. "AS DIRECTED" means as directed by the Commissioner, or his representative.
5. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings or shafts.
6. "SUBMIT" means submit to Engineer for review. Refer to Architectural General and Special Conditions for proper procedures.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Commissioner.
- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project will not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Commissioner and relocate work incorrectly installed as determined by the Commissioner.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Install materials and equipment with qualified trades people.
- G. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- H. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards, and as approved by local authorities having jurisdiction.
- I. Fully lubricate equipment when installed.
- J. Do not operate gas, water, or systems until piping has been cleaned and startup strainers are in place.
- K. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- L. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- M. Locate valves, access doors, etc. to be easily accessible, either in mechanical spaces or through access panels as specified hereinafter, or as required. Coordinate and obtain Commissioner's and Engineer's approval of access panel locations.
- N. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Engineer before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- O. Pressure vessels and relief valves shall be selected, built and labeled in accordance with ASME. Obtain a certificate from the City Inspector having jurisdiction showing such acceptance, and mount this certificate in a black frame under glass or laminated plastic adjacent to each pressure vessel and relief valve.

- P. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.
- Q. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.

2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Within two (2) months after notice to proceed by the City of New York or Commissioner, submit to the Engineer for review, a complete typed list of all mechanical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Within four (4) months after notice to proceed by the City of New York or Commissioner, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Engineer. Prior to submission of the shop drawings, product data and samples to the Engineer, review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.
- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.

2.3 REVIEWS

- A. Commissioner's and/or Engineer's review is for general compliance with the design concept and contract documents. Markings or comments or the lack thereof does not relieve the Contractor from compliance with the project plans and specifications. The Contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing his work in a safe manner, and for coordinating his work with that of other trades.
- B. No part of the work shall be started in the shop or in the field until the Commissioner and/or Engineer have reviewed the shop drawings and samples for that portion of the work.
- C. A minimum period of ten (10) working days, exclusive of transmittal time, will be required in the Engineer's office each time a shop drawing, product data and/or samples are submitted for review. This time period must be considered by the Contractor when scheduling his work.
- D. Submit one sepia transparency and two prints of all sheet metal and piping drawings.
 - 1. Submit six (6) copies of catalog cuts.

E. Submissions will be stamped as follows:

No Exceptions Noted []:	When directed, fabrication, manufacture or construction may proceed providing submittal complies with the Contract Documents.
Exceptions Noted []:	Work may proceed as above so long as the engineer's notations are complied with. [] No Resubmission Required. [] Resubmit For Record Only.
Revise and Resubmit []:	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.

2.4 ALTERNATIVE MATERIALS AND EQUIPMENT

- A. Contract Documents are based on materials specified and on equipment manufacturers indicated on the Drawings. Approval by Engineer of equipment manufacturers other than indicated on the Drawings or materials other than specified, does not relieve Contractor of any responsibility to provide equipment and materials which will meet the performance as stated or implied by the Contract Documents.
- B. Only those equipment manufacturers listed in individual sections are acceptable for this project, subject to requirements of contract documents.
- C. Submit proposals to supply alternative materials or equipment, in writing, to the Engineer with sufficient lead time for review by Commissioner and Engineer prior to the date equipment must be ordered to maintain project schedule. Contractor submitting alternative will reimburse Commissioner for all costs associated with the review of the proposed alternative whether alternative is accepted or rejected. Include the following information with the proposal.
 - 1. A description of the difference between the contract requirements and that proposed, the comparative features of each, and the effect of the change on the end result performance. Include the impact of all changes on other contractors and acknowledge the inclusion of implementation costs.
 - 2. A list of the contract requirements that must be revised if the change is accepted, including any suggested specification revisions.
 - 3. Include a description and estimate of costs the Commissioner may incur in implementing the change, such as test, evaluation, operating and support costs.
 - 4. A projection of any effects the proposed change would have on collateral costs to the Commissioner.
 - 5. A statement of the time by which a contract modification accepting the change must be issued, noting any effect on the contract completion time or the delivery schedule.
 - 6. A statement indicating the reduction to the contract price if the Commissioner accepts the change. Be responsible for appropriate modifications to all trades.

- D. Include all revisions required to adapt alternatives in such proposals, including revisions by other trades. No increase in the contract price will be considered to accommodate the use of alternative equipment.
- E. Wherever operating results such as quantity delivered or pressure obtained are scheduled, or when the make and size of apparatus, for which such quantities are readily determinable, is specified, the substitution being proposed must conform substantially to the quantities specified or implied. The substitution must fit into available space conditions and must function properly in coordination with the rest of the system.

PART 3 - EXECUTION

3.1 FEES

- A. Pay all required fees.
- B. Pay royalties or fees required in connection with the use of patented devices and systems.
- C. Provide controlled inspection where required by local authorities or by these specifications.

3.2 DRAWINGS & PRODUCT DATA

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Engineer's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- D. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- E. Prepare and submit detailed shop drawings for ductwork piping work and other distribution services in 3/8" = 1'-0" scale, including locations and sizes of openings in floor decks, walls and roofs.
- F. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Engineer, or for deviations from requirements in the Contract Documents. Understand clearly that the Engineer's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- G. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Engineer and will be returned to the Contractor for resubmittal.
- H. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Commissioner, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each

correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

3.3 CONTRACTOR'S COORDINATION DRAWINGS

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.
- B. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as piping, busway, conduit, ductwork, etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have signed-off by the other subcontractors and the General Contractor prior to the installation of the work in the area covered by the specific drawing.
- C. Indicate piping loads and support points for all piping 4" and larger, racked piping, racked conduit, and busway, and submit to the Structural Engineer for review and approval. Indicate the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all lines. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.
- D. This requirement for Coordination Drawings is not authorization for the Contractor or Subcontractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, eight (8) inch high zone directly above the ceiling for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- E. Work installed which interferes with work of any other trade will be corrected at no cost to the project.

3.4 COORDINATION OF WORK

- A. The fire protection drawings show the general arrangement of piping. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- C. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto with sufficient access space, including finished suspended ceilings.
- D. Wherever work interconnects with work of other trades, coordinate with other trades. Insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (valves, cleanouts, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- E. Consult with other trades regarding equipment so that, wherever possible, motors, motor controls, pumps and valves are of the same manufacture.

- F. Furnish and set sleeves for passage of pipes, ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each pipe and duct passing through building surfaces.
- G. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc. which pass through rated walls, partitions and floors.
- H. Provide detailed information on openings and holes required in precast members for mechanical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- I. Provide required supports and hangers for, piping and equipment, designed so as not to exceed allowable loadings of structures.
- J. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Engineer and obtain from him written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- K. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Engineer for review. At completion include a set of such drawings with each set of as-built drawings.
- L. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- M. Adjust location of pipes, ducts, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
 - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
 - 2. Make offsets, transitions and changes in direction in pipes and ducts as required to maintain proper head room and pitch on sloping lines. Furnish and install traps, air vents, drains, etc., as required to effect these offsets, transitions and changes in direction.
- N. Install fire protection work to permit removal (without damage to other parts) of coils, heat exchanger plates and tube bundles, fan shafts and wheels, filters, belt guards, sheaves and drives, and other parts requiring periodic replacement or maintenance. Arrange pipes, , and equipment to permit access to valves, cocks, traps, starters, motors, and control components, and to clear the openings of swinging doors and access panels.
- O. In cases of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instructions from the Commissioner and/or Engineer.
- P. Immediately upon the award of this Contract, but prior to commencing any work, confer together with designated major subcontractors, with the Commissioner and Engineer concerning the work under this Contract.

3.5 CUTTING AND PATCHING

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of ductwork, piping or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. using skilled mechanics of the trades involved at no additional cost to the Commissioner.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner approved by the Commissioner.
- C. Where piping or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

3.6 RESPONSIBILITY FOR EVALUATION

- A. The Engineer makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

3.7 FIRE ACCESS TO FIRE APPARATUS

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

3.8 EQUIPMENT PAD AND ANCHOR BOLTS

- A. Concrete pads for various pieces of equipment will be furnished by the General Contractor under another Division. Pads will be provided in all mechanical equipment rooms except individual floor air handling unit rooms. This shall include floor mounted equipment, equipment mounted on legs and pipe support stands. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire mesh. Trowel tops and sides of pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS" for dimensional guidance in sizing pads.
- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to

the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

3.9 DELIVERY, DRAYAGE AND HAULING

- A. Include all drayage, hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.
- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the Commissioner.

3.10 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the City of New York, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.
- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

3.11 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.
- C. Provide drip pans under all piping installed in any electrical equipment room. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill into floor drain or service sink.

3.12 EQUIPMENT GUARDS

- A. Provide easily removable expanded metal guards for all couplings, and other moving parts of machinery. Provide tachometer openings in the guards at least 2" in diameter, for all belt-driven or variable speed machinery. Comply with OSHA requirements for all equipment guards.

3.13 LUBRICATION

- A. Provide means for lubricating all bearings and other machine parts.

- B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated with a lubricant recommended by the equipment manufacturer until the Commissioner issues a Certificate of Substantial Completion for the specific equipment item or system.

3.14 DATE OF COMPLETION AND TESTING OF FIRE PROTECTION SYSTEMS

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.
- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Engineer and Commissioner for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

3.15 OPERATING INSTRUCTIONS

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.

3.16 OPERATING AND MAINTENANCE BOOKS

- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit three (3) final copies of operating and maintenance data books for review at least ten (10) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Engineer six (6) months after notice to proceed has been given by the City of New York or Commissioner. Include in the initial copies all the information in Paragraph E. below, except Item E.4).
- D. Maintenance instruction manuals to include complete oiling, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads.
- E. Include the following information where applicable:
 - 1. Identifying name and mark number.
 - 2. Locations (where several similar items are used, provide a list).
 - 3. Complete nameplate data.
 - 4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
 - 5. Parts list.
 - 6. Performance curves and data.
 - 7. Wiring diagrams.
 - 8. Lubrication charts.

9. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
10. List of spare parts recommended for normal service requirements.
11. Assembly and disassembly instructions with exploded view drawings where available.
12. Troubleshooting diagnostic instructions where applicable.

3.17 RECORD DRAWINGS

- A. Maintain on a daily basis at the project site a complete black and white set of "As-Built Drawings", reflecting an accurate dimensional record of all deviations between work shown on drawings and that actually installed.
- B. Record dimensions clearly and accurately to delineate the work as installed; suitably identify locations of all equipment by at least two dimensions to permanent structures. In addition, mark the Record Drawings to show the precise location of concealed work and equipment, including concealed or embedded piping and valves and all changes and deviations in the mechanical work from that shown on the Contract Documents. This requirement is not construed as authorization for the Contractor to make changes in the layout or work without written instructions from the Engineer.
- C. Upon completion of the installation, obtain from the Engineer, a complete set of AutoCAD files with Engineer's seal and firm name removed. Enter thereon, in a neat and accurate manner, a complete record of all revisions of the original drawings, as actually installed. Bear the cost for transparencies and for making required changes. Submit one (1) set of black and white prints of these revised transparencies to the Engineer for review of completeness. After review by the Engineer, make necessary changes to transparencies and then deliver them to the Engineer for transmittal to the Commissioner. Engineer will not review these drawings for accuracy nor will the Engineer bear any responsibility for accuracy or completeness.
- D. Upon completion of the installation, obtain from the Engineer, a complete set of CAD files on 700MG CD-ROM with Engineer's firm name removed. Enter thereon, in an accurate manner, a complete record of all revisions of the original drawings, as actually installed. Bear the cost for the CAD files and for making required changes. The Engineer shall be reimbursed \$10/file for the CAD files prior to their release to the Contractor. Submit one (1) set of black and white prints of these revised files to the Engineer for review of completeness. After review by the Engineer, make necessary changes to CAD files and then deliver them to the Engineer for transmittal to the Commissioner. Engineer will not review these drawings for accuracy nor will the Engineer bear any responsibility for accuracy or completeness.
- E. Mark all As-Built Drawings on the front lower right hand corner with a rubber stamp impression that states the following:

"AS-BUILT DRAWINGS" (3/8" high letters)
To be used for recording Field Deviations and Dimensional Data Only".
(5/16" high letters).
- F. The Record Drawings will also consist of a set of prints of the final "Signed Off" Contractor's "Coordination Drawings" prepared by the Subcontractors.

3.18 CERTIFICATION

- A. Any certifications required by the Specifications, in addition to those required for shop drawings, product data, equipment and other items, are to be so certified by the Commissioner, a Partner, or a Corporate Officer of the firm required to provide the Certification, or by another person duly authorized to sign binding agreements for and in behalf of the City of New York, Partner or Corporation.

3.19 EARLY OCCUPANCY

- A. Be responsible for completing those systems which are necessary to allow partial occupancy of the buildings even if systems in the unoccupied areas are incomplete. Refer to the Section entitled "Special Conditions" in the Architectural Specifications Documents for the schedule completion dates assigned to the various portions of the project.
- B. Verify requirements for temporary occupancy with the local Building Department.

END OF SECTION 21 00 02

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SECTION 21 00 03 – SCOPE OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. This specification is not intended to be a complete itemization of fire protection required, but is for guidance of this contractor in estimating his work. This contractor shall examine the architectural, mechanical, electrical, plumbing and fire protection plans for all fire protection work required and shall provide same.
- B. It is intended that all items of material and equipment mentioned in this specification and shown on the plans shall be read as if the work "Provide" were prefixed thereto.
- C. Description of work included:
1. Provide a complete fire standpipe system consisting of risers and riser control valves, distribution and branch piping, hose valves, hose racks and cabinets, roof manifolds, siamese, pumps and pump controllers, and all associated appurtenances and alarm devices.
 2. Provide a complete sprinkler system consisting of risers and riser control valves, sprinkler heads, siamese, pumps and pump controllers, and all associated appurtenances and alarm devices.
 3. Provide a complete combined fire protection system consisting of:
 - a. Standpipe:
 - 1) Risers and riser control valves, distribution and branch piping, hose valves, hose racks and cabinets, roof manifolds, siamese, pumps and pump controllers, and all associated appurtenances and alarm devices.
 - b. Sprinkler:
 - 1) Connection to standpipe system, sprinkler floor control valve assembly, distribution and branch piping, sprinkler heads, all associated appurtenances and alarm devices.
 4. Provide a complete Halon system consisting of Halon agent, control panel, piping and nozzles, and all alarm and actuating devices.
 5. Operating manuals and instructions.
 6. System cleaning, balancing, testing, adjusting and inspection.
 7. Sound and vibration isolation.
 8. Painting.
 9. Supports, anchors, hangers and auxiliary structural members required for support of mechanical work. Drawings, templates, structural steel, anchor bolts, isolation materials, formwork for concrete and other equipment supports.
 10. Electric motors.
 11. Internal wiring of factory-assembled prewired equipment.
 12. Counter flashing of pipe at roof penetrations (manifolds).
 13. Firestopping of pipe penetrations through rated walls, floors, etc.

1.3 WORK NOT INCLUDED

A. The items listed below are related to this work but specified under other sections of the contract:

1. Motor control centers.
2. Finish painting, except as penetrating wall or roof.
3. Base flashing for materials penetrating walls or roof.
4. Power wiring for motors and motor controllers.
5. Concrete for equipment, support pads and pipe in casement.
6. Fire command station.
7. Wire tracing and associated insulation.
8. Alarm wiring from fire protection alarm devices to fire command station.
9. Incoming City water services including meters, backflow preventors, etc.
10. Connection to supervisory central station.
11. Floor drains and/or drain receptacles for test or drain purposes.

PART 2 - PRODUCTS

2.1 NOT USED.

PART 3 - EXECUTION

3.1 OPERATING INSTRUCTION PERIOD

A. Provide one day of instructions for standpipe and sprinkler systems.

END OF SECTION 21 00 03

SECTION 21 05 17 – SLEEVES AND SEALS FOR FIRE SUPPRESSION PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a U.L. approved firestopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.
- C. Sleeves

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site. Literature shall indicate product characteristics, typical use, performance and limitation criteria and test data.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. U.L. Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings, and approved UL system number.
- E. Engineering Judgements: Submit manufacturer's drawings for all non-standard applications where no U.L. tested system exists. All drawings must indicate the "Tested" U.L. system upon which the judgement is based so as to assess the relevance of the judgement to some known performance.
- F. Submit manufacturer's installation procedures for each type of product.
- G. Approved Applicator: Submit document from manufacturer wherein manufacturer recognizes the installer as qualified or submit a list of past projects to demonstrate capability to perform intended work.
- H. Upon completion, installer shall provide written certification that materials were installed in accordance with the manufacturer's installation instruction and details.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports. Field inspections shall be carried out by the firestop manufacturer to verify that the installation is in accordance with the manufacturer requirements.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.

- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.
- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.
- E. Firestopping materials shall be asbestos and lead free and shall not incorporate or not require the use of hazardous solvents.
- F. Firestopping sealants must be flexible, allowing for normal pipe movement.
- G. All fire stopping materials shall be manufactured by one manufacturer.
- H. Installation of firestopping systems shall be performed by a Contractor (or Contractors) trained or approved by the firestop manufacturer.
- I. Material used shall be in accordance with the manufacturer's written installation instructions.
- J. Submit a line-by-line statement of compliance or non-compliance with this specification section.

PART 2 - PRODUCTS

2.1 FIRESTOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple pipes against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
 - 1. Penetrations for the passage of piping through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
 - 2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.2 MATERIALS

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.
- D. Firestopping materials shall be unaffected by moisture.

2.3 SLEEVES

- A. Provide sleeves for each pipe passing through walls, partitions, and floors.
- B. Sleeve Materials

Type	Sleeve Materials
1	#18 gauge, galvanized steel
2	Standard weight galvanized steel pipe
3	Cast iron body with flashing clamp and underdeck clamp similar to J.R. Smith, figure 1720.

C. Sleeve Sizes

- 1. Sleeves shall be of adequate diameter to allow pipe, insulation, and fire stopping to fit.
- 2. Sleeves shall provide 1" minimum clearance around pipes smaller than 4" and 2" minimum clearance around pipes 4" and larger.

D. Sleeve Lengths

Location	Sleeve Length	Material
Floor	All floor sleeves to extend minimum of 2" above finished floor level.	2
Stair Landing	Equal to depth of construction and terminated flush with finished surfaces.	2
Walls and Partitions	Equal to depth of construction and terminated flush with finished surfaces.	1
Floors with membrane waterproofing	All floor sleeves to extend minimum of 2" above finished floor level.	3

E. Foundation Wall Penetrations

- 1. The pipe to wall sleeve penetration closure shall be "Pipe Linx" as manufactured by Calpico, Inc. Or use an equal product from the manufacturers listed in Article 2.4. Seals shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely watertight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing changes of cathodic reaction between these two members.
- 2. Contractor shall determine the required inside diameter of each individual wall opening or sleeve before ordering, fabricating or installing. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and Pipe Linx to assure a watertight joint. Or use an equal product from the manufacturers listed in Article

2.4. If pipe O.D. is non-standard due to coating, insulation, etc., consult manufacturer for assistance before proceeding with wall opening detail

2.4 ACCEPTABLE MANUFACTURERS

- A. Specified Technologies, Inc.
- B. Dow Corning
- C. Flamesafe
- D. International Protective Coatings
- E. Or approved equal.

PART 3 - EXECUTION

3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.

3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.

3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.

3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.
- C. Verify manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.
- D. Verify the condition of the substrates before starting work.
- E. Verify Weather Conditions. Do not proceed with installation of firestop materials when temperatures fall outside the manufacturer's suggested limits.
- F. Verify that firestopping materials are installed so as not to contaminate adjacent surfaces.
- G. Schedule firestopping after installation of penetrants but prior to concealing the openings.
- H. Where firestopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.
- I. Verify that all pipe, conduit, ducting which penetrate fire-rated construction have been permanently installed prior to installation of firestop.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's details installation procedures.
- B. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
- C. Unless specified and approved, all insulation used in conjunction with through-penetrations shall remain intact and undamaged and may not be removed.
- D. Seal holes and penetrations to ensure an effective smoke seal.
- E. In areas of high traffic, protect firestopping materials from damage. If the opening is large, install firestopping materials capable of supporting the weight of a human.
- F. Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.
- G. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.
- H. Dam Construction
 - 1. When required to properly contain firestopping materials within openings, damming or packing materials may be utilized. Combustible damming material must be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.

3.8 Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.

3.9 Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.

3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the structural engineer prior to penetrating any load bearing assembly.

A. Firestopping - Un-Insulated Cold Pipes

- 1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the pipe and firestopping.
- 2. Install firestop material at each end of sleeve to form a U.L. approved system.
- 3. Mark penetration in an approved manner to verify manufacturer's inspection.

4. Cover firestopping with escutcheon cover.

B. Insulated Pipes

1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the specified thickness of insulation.
2. Pipe insulation should be continuous through sleeve. Insulation should be covered with a vapor barrier. For depth of wall plus 1" on either side of wall or slab, vapor barrier shall be wrapped with a 26 gauge sheetmetal inner sleeve. Firestop shall be applied between wall sleeve and pipe protection sleeve.
3. Install firestop material at each end of sleeve to form a U.L. approved system.
4. Mark penetration in an approved manner to verify manufacturer's inspection.
5. Cover firestopping with escutcheon cover.

3.12 FIELD QUALITY CONTROL

- A. Prepare and install firestopping systems in accordance with manufacturer's printed instruction and recommendations.
- B. Follow safety procedures recommended in the Material Safety Data Sheets.
- C. Finish surfaces of firestopping which are to remain exposed in the completed work to a uniform and level condition.
- D. All areas of work must be accessible until inspection by the applicable Code Authorities.
- E. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification.

3.13 CLEANING

- A. Remove spilled and excess materials adjacent to firestopping without damaging adjacent surface.
- B. Leave finished work in neat, clean condition with no evidence of spill overs or damage to adjacent surfaces.

END OF SECTION 21 05 17

SECTION 21 05 18 – ESCUTCHEONS FOR FIRE SUPPRESSION PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Escutcheons.

1.3 SUBMITTALS

- A. Product Data: Manufacturers' catalogs, brochures.

1.4 QUALITY ASSURANCE

- A. Local Building Code.
- B. Local Fire Department.
- C. National Fire Protection Association (NFPA)
- D. Underwriters Laboratories (U.L.)
- E. Factory Mutual (FM)

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, materials and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 ESCUTCHEONS

- A. Provide escutcheons on all exposed piping through walls, floors, partitions and ceilings.
- B. Escutcheons shall be held in place by set screws.
- C. Escutcheon Application

Location	
Finished Spaces	Chrome plated brass
Unfinished spaces: including mechanical equipment rooms.	Cast iron

- D. Two-piece or hinged escutcheons will not be permitted.
- E. Escutcheons shall be installed on both sides of pipe penetrations.

2.3 ACCEPTABLE MANUFACTURERS

A. Escutcheons

1. H. O. Trerice
2. Weksler Instruments Corp.
3. Taylor Sybron Corp.
4. Or Approved Equal

PART 3 - EXECUTION

NOT USED.

END OF SECTION 21 05 18

SECTION 21 05 19 – METERS AND GAUGES FOR FIRE SUPPRESSION SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide meters and gauges for fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Gauges.

1.3 SUBMITTALS

- A. Product Data: Manufacturers' catalogs, brochures.
- B. Application Schedule: Schedule of locations and pressure gauge range.

1.4 QUALITY ASSURANCE

- A. National Fire Protection Association (NFPA)
- B. Underwriters Laboratories (U.L.)
- C. Factory Mutual (FM)

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, materials and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 GAUGES

- A. Provide pressure gauges where indicated on the drawings and in accordance with the schedule given below. All gauges shall be provided with snubbers. Gauges shall have 4½" diameter dial, white coated with black figures and graduations. Gauges shall be H.O. Trerice Co. Shutoff cock shall be provided between gauge and piping to permit gauge removal while system is under pressure. Or an equal product from the manufactures listed in Article 2.3.
- B. Gauges shall have graduation such that at normal working pressure the needle is in the center of the field.
- C. Gauge Schedule
- D. Gauge Location

Inlet and Outlet of Pumps
Sprinkler Floor Control Valves
Inlet and Outlet of PRV's
Inlet and Outlet of Dry Pipe Valves
Main Water Service

Top and Bottom of all Risers

2.3 ACCEPTABLE MANUFACTURERS

A. Pressure Gauges

1. H. O. Trerice
2. Weksler Instruments Corp.
3. Taylor Sybron Corp.
4. Or Approved Equal

PART 3 - EXECUTION

NOT USED

END OF SECTION 21 05 19

SECTION 21 05 20 – PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials for fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipes.
- B. Fittings.
- C. Joints.

1.3 SUBMITTALS

- A. Prior to purchase, submit a list of all proposed piping materials including system/material (use Schedule).
- B. Submit complete back-up material where manufacturing specification standards of proposed materials differ from those specified.

1.4 QUALITY ASSURANCE

- A. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- B. Each fitting shall have the manufacturer's name cast, stamped or rolled on.

PART 2 - PRODUCTS

2.1 BLACK STEEL PIPE (SCHEDULE 40)

- A. Pipe: Standard weight black steel pipe, Schedule 40, welded or seamless, with manufacturer's name rolled into each length.
- B. Fittings
 - 1. Threaded: Standard malleable iron couplings with flat band.
 - 2. Welded or Flanged: Standard weight steel.
 - 3. Mechanical Couplings: See Article 2.3.
- C. Joints: Red or white lead and oil or approved compound.
- D. Application
 - 1. Threaded: All sprinkler systems.
 - 2. Welded: All fire standpipe over 175 psi.
 - 3. Mechanical Couplings: Sprinkler and Fire Standpipe (See Article 2.3).

2.2 GALVANIZED STEEL PIPE

- A. Pipe: Standard weight galvanized steel pipe, Schedule 40, with makers name rolled into each length.
- B. Fittings
 - 1. Threaded: Galvanized malleable iron with flat band steam pattern.
 - 2. Mechanical Couplings: See Article 2.3. Rolled groove only.
- C. Joints: Red or white lead and oil or approved compound.
- D. Application: Dry pipe sprinkler system.

2.3 MECHANICAL COUPLINGS

- A. The following fittings are taken from the catalog of Victaulic and are representative of the style and construction required.
- B. Standpipe

Style	Pipe Weight	Pressure Rating	Sizes
77-Flexible	Schedule 40	0-500 PSI	1"-10"
Firelock - Rigid	Schedule 40	0-175 PSI	2"-6"

- C. Sprinkler

Style	Pipe Weight	Pressure Rating	Sizes
77-Flexible	Schedule 10/40	0-500 PSI	1"-10"
Firelock - Rigid	Schedule 40	0-175 PSI	2"-6"
920	Schedule 40	0-175 PSI	2"-3"
921	Schedule 40	0-175 PSI	3"-8"

- D. The following products are not acceptable:
 - 1. FIT (Style 96, 963, 969, 719, 966, 960 & 929)
 - 2. Hooker (Style 922)

2.4 ACCEPTABLE MANUFACTURERS

- A. Mechanical Couplings
 - 1. Victaulic
 - 2. Gustin-Bacon
 - 3. Stockham
 - 4. Or Approved Equal
- B. Piping
 - 1. Allied Tube and Conduit Corp.

2. Berger Pipe Co.
3. Wheatland Tube Co.
4. Or Approved Equal

C. Fittings

1. Flagg
2. Nibco
3. Stockham
4. Victaulic
5. Or Approved Equal

PART 3 - EXECUTION

3.1 JOINTS

- A. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply red lead and oil to male threads only. Clean joint thoroughly of excess jointing material.
- B. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- C. Welded Joints:
 1. Butt welded joints shall be open type by the oxyacetylene torch or electric arc process. Fuse welds thoroughly to the joint edges and extend completely to the bottom of V-groove cut. Weld width to a minimum of 2½ times the pipe wall thickness and to be symmetrical with respect to the center line of joint. Build up welds to obtain a gradual increase in thickness from edge to center and the thickness from edge to center is not to exceed 1¼ times the pipe wall thickness. Make all welds of sound metal, free from laps, gas pockets, slag inclusions, interior protrusions or other imperfections.
 2. Qualify welders to the code for Pressure Piping ANSI B31.1 with certification by the Welding Bureau of Heating, Piping and Air Conditioning Contractors National Association. Welding shall not be started until submission of evidence of qualification.
- D. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- E. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- F. Make joints between pipes of dissimilar metals with dielectric union or flanges.

3.2 PIPE AND FITTINGS

- A. Threads shall be full and clean cut and burrs formed in cutting shall be reamed. In screwing up the pipe, care shall be taken that the pipe does not extend into the fitting obstructing the waterway. Joint compound shall be applied to the threads of the pipe and not to the fittings or sprinklers. Pipe shall be straightened before installation to prevent pockets.
- B. A one-piece reducing fitting shall be used wherever a change is made in the size. The use of bushings or reducing flanges will not be permitted.
- C. Unions shall be used only on pipes 2" and smaller, and provided at connections to each piece of equipment for easy dismantling.
- D. Only shoulder nipples shall be used. Close nipples will not be acceptable.

- E. All fittings and couplings shall be made by the same manufacturer.
- END OF SECTION 21 05 20

SECTION 21 05 23 – FIRE SUPPRESSION VALVES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide valves for fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. OS&Y Valves.
- B. Gate Valves.
- C. Ball Valves.
- D. Butterfly Valves.
- E. Check Valves.
- F. Pressure Reducing Valves.
- G. Pressure Relief Valve.

1.3 SUBMITTALS

- A. Manufacturers' Specifications and Engineering Data
 - 1. Each type valve.
 - 2. Materials or all parts.
 - 3. Pressure ratings.
 - 4. Schedule of major control valves, check valves and pressure reducing valves.
 - 5. Certificates: Manufacturers' certification that valves and accessories meet or exceed specification requirements.

1.4 QUALITY ASSURANCE

- A. Each valve shall have the manufacturer's name, size and pressure rating cast or stamped on body.
- B. Each valve shall bear U.L./FM Global label or marking.
- C. Except as noted, type and size of materials and equipment as approved by:
 - 1. Local Building Code.
 - 2. Underwriter's Laboratory.
 - 3. Factory Mutual.
 - 4. National Fire Protection Association (NFPA).
 - 5. Owner's Insurance Underwriters.
 - 6. New York City Board of Standards and Appeals.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All fire protection water control valves within the building shall be either wedge gate valves with painted iron wheel handles, shall have gland followers in stuffing boxes, and shall be constructed so that they may be repacked while open and under pressure, or slow-closing quarter-turn gear-operated butterfly valves.
- B. All valves shall have the name of the manufacturer and working pressure cast or stamped on body.
- C. All valves are to be U.L. listed and FM Global approved.
- D. All valves shall be with threaded, grooved, or flanged ends as required by the piping system in which they are installed.
- E. Valves shall be selected for the maximum working pressure they will be exposed to (including churn pressure), or as indicated on the drawings.
- F. All fire protection valves shall be provided with tamper switches.

2.2 VALVE SCHEDULE

- A. Unless otherwise indicated, the valves tabulated on the Valve Schedule on drawings have been selected from the catalog of The Stockham Valve Co. or an equal product from the manufacturers listed in Article 2.8, and are representative of the design, materials and working features desired. All fire protection valves shall be U.L. listed and FM Global approved.
- B. The following Stockham Valve Co. numbers are applicable. Valves of corresponding features as indicated on the approved manufacturer paragraph of this section may be submitted for review.

1. Gate Valves:

Size & End	Figure No.	Pressure Rating	Material	Spindle
2" & Smaller	B133	175	Bronze	OS&Y
2½" & Larger	G634	175	IBBM	OS&Y

2. Check Valves:

Size & End	Figure No.	Pressure Rating	Material	Spindle
2" & Smaller	B319	200	Bronze	
2½" & Larger	G940	175	IBBM	

3. Drain Valves:

Size & End	Figure No.	Pressure Rating	Material	Spindle
2" & Smaller	B115	200	Bronze	Non-Rising Stem

4. Butterfly Valves as per Nibco Inc., or use equal product from the manufactures listed in Article 2.8:

Size & End	Figure No.	PSIG W.O.G.	Disc Material	Actuator
Wafer-Dead end rated	WD3510-4	250	Ductile Iron	Gear Operator
Wafer	WD3510-2	250	Ductile Iron	Gear Operator
Lug-Dead end rated	LD3510-4	250	Ductile Iron	Gear Operator
Lug	LD3510-2	250	Ductile Iron	Gear Operator

2.3 PRESSURE REDUCING VALVE (PRV) – PILOT OPERATED

- A. Valve shall maintain a constant downstream pressure regardless of varying inlet pressure. Valve shall be hydraulically-operated, diaphragm-actuated, globe or angle pattern valve. It shall contain a resilient, synthetic rubber disc, having a rectangular cross-section, contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat.
- B. The diaphragm assembly containing a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. This diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. The diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface.
- C. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve or pilot controls. All necessary repairs shall be possible without removing the valve from the line.
- D. The pilot control shall be direct-acting, adjustable, spring-loaded, normally open, diaphragm valve, designed to permit flow when controlled pressure is less than the spring setting. The control system shall include a fixed orifice.
- E. This valve shall be U.L. listed and shall be similar to a Model 90-21 Pressure Reducing Valve as manufactured by Cla-Val Co, or an equal product from the manufactures listed in Article 2.8.

2.4 PRESSURE REDUCING VALVES (PRV) – DIRECT ACTING

- A. The valve shall be rated for 400 psi working pressure, and able to be tested to its full rating without damage to any part of the valve. The valve is to be of all bronze construction, with bronze and stainless steel trim, with globe body. The valve shall be U.L. listed and approved by local authorities. The valve is to be set and sealed at the factory. A seal is to be affixed to the valve at the factory for protection against tampering. Valve shall be as manufactured by Potter-Roemer, Inc. Fig. PRV-4036 Reg-U-Matic or approved equal of Zurn Industries or Ford Regulator Corp, or an equal product from the manufactures listed in Article 2.8.

2.5 PRESSURE RELIEF VALVE

- A. Furnish and install where indicated on drawings or downstream of all pressure reducing valves a 3/4" cast brass pressure relief valve similar to Potter-Roemer 4059, or an equal product from the manufactures listed in Article 2.8.

2.6 FIRE PUMP VALVES

- A. Check Valves at Fire Pumps (Suction & Discharge): Williams-Hager Figure 636, 250 psi, w.p., semi-steel/bronze trim, or an equal product from the manufactures listed in Article 2.8.

- B. Check Valves at Jockey Pump (Suction & Discharge): Williams-Hager Figure 329, 250 psi, w.p., semi-steel/bronze trim, or an equal product from the manufactures listed in Article 2.8.
- C. All fire protection check valves shall be U.L. listed and FM Global approved.

2.7 MECHANICAL COUPLINGS

- A. In addition to valves scheduled on the drawings the following Victaulic mechanical coupling valves may be provided:

System	Model No.	Pressure	Size
Sprinkler/ Standpipe	705-W WTS	0-300 psi	2 1/2"-12"
Sprinkler	728 WTS	0-350 psi	1"-2"
Fire Pump	717 Check Valve	0-250 psi	4"-12"

2.8 ACCEPTABLE MANUFACTURERS

- A. Threaded and Flanged Valves

1. Stockham
2. Milwaukee
3. Kennedy
4. Nibco
5. Or Approved Equal

- B. Mechanical Coupling Valves

1. Victaulic
2. Gustin-Bacon
3. Stockham
4. Or Approved Equal

- C. Check Valves

1. Williams Hager (Fire Pump only)
2. Nibco
3. Victaulic
4. Stockham
5. Milwaukee
6. Kennedy
7. Or Approved Equal

- D. Pressure Reducing Valve – Direct Acting

1. Potter Roemer
2. Zurn
3. Ford
4. Or Approved Equal

- E. Pressure Reducing Valve – Pilot Operated

1. Cla-Val

2. Potter Roomer
3. Zurn
4. Or Approved Equal

F. Pressure Relief Valve

1. Potter Roomer
2. Zurn
3. Cla-Val
4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All valves shall be installed only in the upright vertical or horizontal positions unless specifically otherwise required by the drawings.
- B. All valves shall be installed in accessible locations to facilitate easy removal for repair or replacement.
- C. All grooved end valves shall be of the same manufacturer as the grooved couplings and fittings.
- D. Pressure Ratings for Check and Gate Valves

1. Vertical Distance From Fire Pump

Vertical Distance From Fire Pump	Class
0-165'	250
165'-400'	150

2. Max. Static Head from Roof Tank

Max. Static Head from Roof Tank	Class
0-115'	150
115'-270'	250
270'-425'	350
425'-657'	500
657'-1122'	800
1122'-Larger	1000

END OF SECTION 21 05 23

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SECTION 21 05 29 – HANGERS, SUPPORTS, ANCHORS AND GUIDES
FOR FIRE SUPPRESSION SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of this Section shall conform to the requirements of the Contract Documents.

1.2 WORK INCLUDED

- A. Hangers and supports.
B. Supports
C. Seismic Restraints

1.3 SUBMITTALS

- A. Manufacturer's literature, catalog data and illustrations.
B. Shop Drawings indicating:
1. Dimensions
2. Construction details of hangers, inserts, anchors and guides
3. Materials
4. Maximum Load
5. Locations
6. Recommended installation procedures

1.4 QUALITY ASSURANCE

- A. Codes and Authorities
1. Federal Specification WW-H171b
2. ASA Code for Pressure Piping
3. ASTM A-575-73
4. MSS SP-58-67
5. MSS SP-69-66
6. Underwriters Laboratories
7. Factory Mutual
8. National Fire Protection Association

PART 2 - PRODUCTS

2.1 HANGERS

- A. All bracket, clamp and rod sizes indicated in this specification are minimum sizes only. All structural hanging materials shall have a built-in safety factor of 5.
B. Provide rolled-steel auxiliary pipe supports as required.
C. Anchor points shall be located and constructed to permit the piping system to take up its expansion and contraction freely in opposite directions from the anchored points.

- D. Guide points shall be located and constructed wherever required or shown on drawings and at each side of an expansion joint or loop, to permit free axial movement only in a piping system.
- E. All hangers shall be U.L. listed and FM approved.
- F. C-clamps with locknut and retaining clip will be permitted.
- G. Pipe Hanger Schedule

	Carpenter Patterson 'Witch'	& Grinnell	I. R. Rauch's & Sons
C-Clamp with Retaining Clip and locknut(pipe sizes 2" & smaller	47 with 22	86 with 89	47 with 22
Beam Clamp	293	228	82
Multi-J Hook	---	---	228
J Hook	---	---	221
Clevis Hanger	100	260	100
Clevis Hanger w/Saddle	100SH	---	100SH
180° Shield	265P	168	265P
Single Rod Roll Hanger	140	181	140
Double Rod Roll Hanger	142	171	142
Trapeze	---	46	1600-1700
U-bolt Adjustable Pipe	283	137C	283
Stanchion Saddle	247	259	247
Welded Steel Bracket	84 or 139	199 or 195	84 or 139
Riser clamp	126	261	126
Welded Beam Attachment	113A	66	---
Welded Beam Attachment w/bold & nut	113B	66	113A
Concrete Insert	108	282	180 or 181
Phillips Inserts	513	Phillips Insert	1000

H. Hanger Rod Schedule

Pipe Size	Rod Diameter
4" and smaller	3/8"
5", 6", & 8"	1/2"
10" & above	5/8"

I. Acceptable Manufacturers

1. I. R. Rauch's & Sons
2. Grinnell Company, Inc.
3. Carpenter & Patterson
4. Or Approved Equal

2.2 FOUNDATIONS

- A. All equipment, piping, etc., shall be mounted on approved foundations, all as specified herein, or as shown on the drawings.
- B. All floor-mounted equipment shall be erected on 12" high concrete pads, provided under a separate section of the specifications, over the complete floor area of the equipment, unless specified to the contrary herein. Hereinafter, wherever vibration eliminating devices and/or concrete inertia blocks are specified, these items shall in turn be mounted upon aforementioned pads unless specified to the contrary herein.
- C. All floor-mounted equipment shall be erected on 12" high concrete pads, over the complete floor area of the equipment, unless specified to the contrary herein. Hereinafter, wherever vibration eliminating devices and/or concrete inertia blocks are specified, these items shall in turn be mounted upon aforementioned pads unless specified to the contrary herein.
- D. All concrete foundations and supports (and required reinforcing thereof) will be furnished and installed under this Section of the Specification. Furnish templates for all concrete foundations and supports, and all required hanger bolts and other appurtenances necessary for the proper installation of equipment. Submit shop drawings showing the complete details of all foundation bases including necessary concrete and steel work, vibration isolation devices, etc.

2.3 SEISMIC RESTRAINTS

- A. All piping systems shall be braced to withstand a ½" "g" seismic acceleration. Spacing of bracing is to be as follows:
 1. Piping, lateral, braced at a maximum of 40 foot intervals.
 2. Longitudinal bracing at 80 foot intervals.
 3. Seismic restraints are not required on the following:
 - a. Branch lines 2" and smaller
 - b. All clevis hung pipe suspended by individual non-friction hanger designed to support the imposed static load and the anticipated ½ "g" seismic acceleration 6" in length or less from the top of the pipe support to the bottom of the support for the hanger.
 4. Overstress of the building structure must not occur. Seismic bracing may occur from:
 - a. Flanges and structural beams.
 - b. Cast in place inserts or drilled and shielded inserts in concrete structures.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All piping shall be supported only from building structural steel or galvanized steel inserts imbedded in poured concrete. Where piping revisions are required after slabs are poured, pipes 3" and smaller may be supported at intermediate points by "Phillips" or other 3/4" expansion

bolts and shields, provided main supports are not less than 20 feet on centers. All inserts, expansion bolts and shields in post-tensioned concrete slabs shall be submitted to Structural Engineer for approval prior to commencement of work. Intermediate supports for piping 4" and larger shall be attached to concrete beams or columns by means of 4" x 4" x 3/8" (horizontal) and supporting rod at 90° from anchor bolt. It is the intent that inserts are only permitted in poured concrete construction.

B. Hanger Locations for Horizontal Piping

1. Steel Piping 1¼" and Smaller: Every 12 feet.
2. Steel Piping (Schedule 40 and larger) 1½" and Larger: Every 15 feet.
3. Steel piping (less than schedule 40) 1½" and larger: Every 12 feet.

C. Support Locations for Vertical Piping

1. Threaded & Mechanical Joint Piping: At every floor, but in no case greater than 20-foot intervals.

D. Hangers shall be installed outside of piping insulation with a semi-cylindrical galvanized shield set between the hanger and insulation.

E. All beam attachments shall be installed on clean, smooth, and non-fireproofed sections of the beam.

F. All fire protection piping shall be hung individually from the structure.

G. All hangers, anchors, rods and supports shall be painted. Refer to Section 23 05 29.

END OF SECTION 21 05 29

SECTION 21 05 48 – VIBRATION AND SEISMIC CONTROLS FOR
FIRE SUPPRESSION PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of this Section shall conform to the requirements of the Contract Documents.

1.2 WORK INCLUDED

- A. Seismic Restraints

1.3 SUBMITTALS

- A. Manufacturer's literature, catalog data and illustrations.
- B. Shop Drawings indicating:
1. Dimensions
 2. Construction details of hangers, inserts, anchors and guides
 3. Materials
 4. Maximum Load
 5. Locations
 6. Recommended installation procedures

1.4 QUALITY ASSURANCE

- A. Codes and Authorities
1. Underwriters Laboratories
 2. Factory Mutual
 3. National Fire Protection Association

PART 2 - PRODUCTS

2.1 HANGERS

- A. All bracket, clamp and rod sizes indicated in this specification are minimum sizes only. All structural hanging materials shall have a built-in safety factor of 5.
- B. Provide rolled-steel auxiliary pipe supports as required.
- C. Anchor points shall be located and constructed to permit the piping system to take up its expansion and contraction freely in opposite directions from the anchored points.
- D. Guide points shall be located and constructed wherever required or shown on drawings and at each side of an expansion joint or loop, to permit free axial movement only in a piping system.
- E. All hangers shall be U.L. listed and FM approved.
- F. C-clamps with locknut and retaining clip will be permitted.

G. Pipe Hanger Schedule

	Carpenter Patterson 'Witch'	& Grinnell	I. R. Rauch's & Sons
C-Clamp with Retaining Clip and locknut(pipe sizes 2" & smaller	47 with 22	86 with 89	47 with 22
Beam Clamp	293	228	82
Multi-J Hook	---	---	228
J Hook	---	---	221
Clevis Hanger	100	260	100
Clevis Hanger w/Saddle	100SH	---	100SH
180° Shield	265P	168	265P
Single Rod Roll Hanger	140	181	140
Double Rod Roll Hanger	142	171	142
Trapeze	---	46	1600-1700
U-bolt Adjustable Pipe	283	137C	283
Stanchion Saddle	247	259	247
Welded Steel Bracket	84 or 139	199 or 195	84 or 139
Riser clamp	126	261	126
Welded Beam Attachment	113A	66	---
Welded Beam Attachment w/bold & nut	113B	66	113A
Concrete Insert	108	282	180 or 181
Phillips Inserts	513	Phillips Insert	1000

H. Hanger Rod Schedule

Pipe Size	Rod Diameter
4" and smaller	3/8"
5", 6", & 8"	1/2"
10" & above	5/8"

I. Acceptable Manufacturers

1. I. R. Rauch's & Sons
2. Grinnell Company, Inc.
3. Carpenter & Patterson
4. Or Approved Equal

2.2 SEISMIC RESTRAINTS

- A. All piping systems shall be braced to withstand a $\frac{1}{2}$ " "g" seismic acceleration. Spacing of bracing is to be as follows:
1. Piping, lateral, braced at a maximum of 40 foot intervals.
 2. Longitudinal bracing at 80 foot intervals.
 3. Seismic restraints are not required on the following:
 - a. Branch lines 2" and smaller
 - b. All clevis hung pipe suspended by individual non-friction hanger designed to support the imposed static load and the anticipated $\frac{1}{2}$ " "g" seismic acceleration 6" in length or less from the top of the pipe support to the bottom of the support for the hanger.
 4. Overstress of the building structure must not occur. Seismic bracing may occur from:
 - a. Flanges and structural beams.
 - b. Cast in place inserts or drilled and shielded inserts in concrete structures.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All piping shall be supported only from building structural steel or galvanized steel inserts imbedded in poured concrete. Where piping revisions are required after slabs are poured, pipes 3" and smaller may be supported at intermediate points by "Phillips" or other $\frac{3}{4}$ " expansion bolts and shields, provided main supports are not less than 20 feet on centers. All inserts, expansion bolts and shields in post-tensioned concrete slabs shall be submitted to Structural Engineer for approval prior to commencement of work. Intermediate supports for piping 4" and larger shall be attached to concrete beams or columns by means of 4" x 4" x $\frac{3}{8}$ " (horizontal) and supporting rod at 90° from anchor bolt. It is the intent that inserts are only permitted in poured concrete construction.
- B. Hanger Locations for Horizontal Piping
1. Steel Piping 1 $\frac{1}{4}$ " and Smaller: Every 12 feet.
 2. Steel Piping (Schedule 40 and larger) 1 $\frac{1}{2}$ " and Larger: Every 15 feet.
 3. Steel piping (less than schedule 40) 1 $\frac{1}{2}$ " and larger: Every 12 feet.
- C. Support Locations for Vertical Piping
1. Threaded & Mechanical Joint Piping: At every floor, but in no case greater than 20-foot intervals.
- D. Hangers shall be installed outside of piping insulation with a semi-cylindrical galvanized shield set between the hanger and insulation.
- E. All beam attachments shall be installed on clean, smooth, and non-fireproofed sections of the beam.
- F. All fire protection piping shall be hung individually from the structure.

G. All hangers, anchors, rods and supports shall be painted. Refer to Section 21 05 18.

END OF SECTION 21 05 48

BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
VIBRATION AND SEISMIC CONTROLS
FOR FIRE SUPPRESSION PIPING AND EQUIPMENT – 21 05 48 - 4

SECTION 21 05 53 - IDENTIFICATION OF FIRE SUPPRESSION PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fire protection systems identification in accordance with the Contract Documents.
- B. Provide a temporary fire standpipe system during construction.

1.2 WORK INCLUDED

- A. Labeling
- B. Valve and Equipment Tagging

1.3 SUBMITTALS

- A. Product Data: Manufacturers' catalogs, brochures.
- B. Schedule: Provide schedule of colors to be used on each system.

1.4 QUALITY ASSURANCE

- A. Local Building Code.
- B. Local Fire Department.
- C. National Fire Protection Association (NFPA)
- D. Underwriters Laboratories (U.L.)
- E. Factory Mutual (FM)

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, materials and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 PIPE LABELING

- A. All piping shall be identified by stenciled lettering, or self-adhesive pipe markers which legend conforms to OSHA/ANSI standards including but not limited to the identification of flow direction, pressure, supply/return, pump discharge, sprinkler, fire standpipe, dry sprinkler, etc.
- B. There shall be at least one lettering identification for each pipe in each space and at all valve locations.
- C. For painted identification use color sharply contrasting with background. If necessary, paint a strip background of black or white to obtain contrast.

- D. Vertical piping shall be labeled at each floor. Horizontal piping shall be labeled every 10', both sides of partitions, before and after turns, and close to valves and flanges.
- E. Each set consisting of one (1) band on which the name of the service is printed in black letters not less than 1½ inches high, and one (1) band on which is printed a black directional arrow. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- F. Adhesive Bands: "Quick-Label B-350 Perma-Code Film Markers" (W.H. Brady Company). Or use an equal product from the manufactures listed in Article 2.4

2.3 VALVE & EQUIPMENT TAGGING

- A. Tag valves with identifying number and system. Number valves by floor level.
- B. For valves, etc., use metal (brass, stainless steel or aluminum) tags, 3" minimum in diameter, with 1½" white painted letters with a red background. Attach tags with chain of same material.
- C. Prepare lists of all tagged valves showing location, floor level, tag number and use. Prepare separate lists for each system. Mount lists under a sheet of clear acrylic in Equipment Room. Include copies in each maintenance manual.
- D. Provide charts showing equipment lubrication points, lubrication required and frequency, and columns for date and initials.
- E. Stencil equipment with identifying letters and numbers as used on drawings. Where space is available use full name of equipment.
- F. Identify all controls such as motor starters not in motor control centers, float switches and alarms.
- G. PAINTING
 - 1. Exposed black steel piping, pipe covering, equipment and support piping and enclosures shall be given two coats of paint.
 - 2. All pipe hangers, anchors and supports shall be given a zinc chromate primer before installation.

2.4 ACCEPTABLE MANUFACTURERS

- A. Pipe Labels
 - 1. W.H. Brady
 - 2. Brimar
 - 3. Grace Labels
 - 4. Or Approved Equal

END OF SECTION 21 05 53

SECTION 21 05 80 – ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

1.2 DESCRIPTION

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work.

1.3 WORK INCLUDED

- A. Access Doors in Drywall.
- B. Access Doors in Ceilings.
- C. Access Doors in Masonry.
- D. Fire Rated Access Doors.
- E. Color Coded Buttons.

1.4 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction, by location within the project.

PART 2 - PRODUCTS

2.1 Wherever access is required through walls or ceilings, to valves, gauges, alarm devices, or other concealed equipment installed under this Division, furnish a hinged access door with flush screwdriver operated cam locks and frame as follows:

- A. Drywall construction--Milcor Style DW or an approved manufacturer listed in Section 23 00 05.
- B. Finished acoustical tile ceiling--Milcor Style AT or an approved manufacturer listed in Section 23 00 05.
- C. Finished plaster ceiling--Milcor Style AP or an approved manufacturer listed in Section 23 00 05.
- D. Finished plaster walls or ceramic tile--similar to doors required for finished acoustical tile ceiling.
- E. Plaster or masonry walls and ceilings outside offices and in other finished areas exposed to view--Milcor Style K or M or an approved manufacturer listed in Section 23 00 05.
- F. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.
- G. Access doors will be installed under another Division. Coordinate all sizes and locations with General Contractor.
- H. No access door shall be installed until location and type have been approved by the Commissioner.

- 2.2 Furnish color coded buttons or tabs to indicate location of valves or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate sizes and location of all access doors with General Contractor.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of valve locations indicating proposed access door locations for review by the Commissioner prior to installation of valves, etc. Include equipment of other trades on the Drawing.

END OF SECTION 21 05 80

SECTION 21 05 85 – FIRE PROTECTION FIRESTOPPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a U.L. approved firestopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site. Literature shall indicate product characteristics, typical use, performance and limitation criteria and test data.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. U.L. Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings, and approved UL system number.
- E. Engineering Judgements: Submit manufacturer's drawings for all non-standard applications where no U.L. tested system exists. All drawings must indicate the "Tested" U.L. system upon which the judgement is based so as to assess the relevance of the judgement to some known performance.
- F. Submit manufacturer's installation procedures for each type of product.
- G. Approved Applicator: Submit document from manufacturer wherein manufacturer recognizes the installer as qualified or submit a list of past projects to demonstrate capability to perform intended work.
- H. Upon completion, installer shall provide written certification that materials were installed in accordance with the manufacturer's installation instruction and details.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports. Field inspections shall be carried out by the firestop manufacturer to verify that the installation is in accordance with the manufacturer requirements.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.
- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.

- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.
- E. Firestopping materials shall be asbestos and lead free and shall not incorporate or not require the use of hazardous solvents.
- F. Firestopping sealants must be flexible, allowing for normal pipe movement.
- G. All fire stopping materials shall be manufactured by one manufacturer.
- H. Installation of firestopping systems shall be performed by a Contractor (or Contractors) trained or approved by the firestop manufacturer.
- I. Material used shall be in accordance with the manufacturer's written installation instructions.
- J. Submit a line-by-line statement of compliance or non-compliance with this specification section.

PART 2 - PRODUCTS

2.1 FIRESTOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple pipes against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
 - D. Penetrations for the passage of piping through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
 - E. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.2 MATERIALS

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.
- D. Firestopping materials shall be unaffected by moisture.

2.3 ACCEPTABLE MANUFACTURERS

- A. Specified Technologies, Inc.
- B. Dow Corning

- C. Flamesafe
- D. International Protective Coatings
- E. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- 3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- 3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- 3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.
- C. Verify manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.
- D. Verify the condition of the substrates before starting work.
- E. Verify Weather Conditions. Do not proceed with installation of firestop materials when temperatures fall outside the manufacturer's suggested limits.
- F. Verify that firestopping materials are installed so as not to contaminate adjacent surfaces.
- G. Schedule firestopping after installation of penetrants but prior to concealing the openings.
- H. Where firestopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.
- I. Verify that all pipe, conduit, ducting which penetrate fire-rated construction have been permanently installed prior to installation of firestop.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's details installation procedures.
- B. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
- C. Unless specified and approved, all insulation used in conjunction with through-penetrations shall remain intact and undamaged and may not be removed.
- D. Seal holes and penetrations to ensure an effective smoke seal.
- E. In areas of high traffic, protect firestopping materials from damage. If the opening is large, install firestopping materials capable of supporting the weight of a human.
- F. Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.
- G. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.
- H. Dam Construction
 - 1. When required to properly contain firestopping materials within openings, damming or packing materials may be utilized. Combustible damming material must be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.

3.8 Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.

3.9 Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.

3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the structural engineer prior to penetrating any load bearing assembly.

A. Firestopping - Un-Insulated Cold Pipes

- 1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the pipe and firestopping.
- 2. Install firestop material at each end of sleeve to form a U.L. approved system.
- 3. Mark penetration in an approved manner to verify manufacturer's inspection.
- 4. Cover firestopping with escutcheon cover.

B. Insulated Pipes

- 1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the specified thickness of insulation.

2. Pipe insulation should be continuous through sleeve. Insulation should be covered with a vapor barrier. For depth of wall plus 1" on either side of wall or slab, vapor barrier shall be wrapped with a 26 gauge sheetmetal inner sleeve. Firestop shall be applied between wall sleeve and pipe protection sleeve.
3. Install firestop material at each end of sleeve to form a U.L. approved system.
4. Mark penetration in an approved manner to verify manufacturer's inspection.
5. Cover firestopping with escutcheon cover.

3.12 FIELD QUALITY CONTROL

- A. Prepare and install firestopping systems in accordance with manufacturer's printed instruction and recommendations.
- B. Follow safety procedures recommended in the Material Safety Data Sheets.
- C. Finish surfaces of firestopping which are to remain exposed in the completed work to a uniform and level condition.
- D. All areas of work must be accessible until inspection by the applicable Code Authorities.
- E. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification.

3.13 CLEANING

- A. Remove spilled and excess materials adjacent to firestopping without damaging adjacent surface.
- B. Leave finished work in neat, clean condition with no evidence of spill overs or damage to adjacent surfaces.

END OF SECTION 21 05 85

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SECTION 21 05 95 – FIRE PROTECTION BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fire protection systems in accordance with the Contract Documents.
- B. Provide a temporary fire standpipe system during construction.

1.2 WORK INCLUDED

- A. Sleeves.
- B. Foundation Wall Sleeves
- C. Escutcheons.
- D. Gauges.
- E. Siamese Connections.
- F. Signs
- G. Tools
- H. Labeling
- I. Valve and Equipment Tagging
- J. Painting

1.3 SUBMITTALS

- A. Shop Drawings: Detail construction drawings indicating materials, performance data, sleeve locations, etc.
- B. Product Data: Manufacturers' catalogs, brochures.

1.4 QUALITY ASSURANCE

- A. Local Building Code.
- B. New York City Building Code, 2008
- C. National Fire Protection Association (NFPA)
- D. Underwriters Laboratories (U.L.)
- E. Factory Mutual (FM)

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, materials and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.
- B. All hose threads shall conform with local Fire Department requirements.

2.2 SLEEVES

- A. Provide sleeves for each pipe passing through walls, partitions, and floors.
- B. Sleeve Materials

Type	Sleeve Materials
1	#18 gauge, galvanized steel
2	Standard weight galvanized steel pipe
3	Cast iron body with flashing clamp and underdeck clamp similar to J.R. Smith, figure 1720.

C. Sleeve Sizes

- 1. Sleeves shall be of adequate diameter to allow pipe, insulation, and fire stopping to fit.
- 2. Sleeves shall provide 1" minimum clearance around pipes smaller than 4" and 2" minimum clearance around pipes 4" and larger.

D. Sleeve Lengths

Location	Sleeve Length	Material
Floor	All floor sleeves to extend minimum of 2" above finished floor level.	2
Stair Landing	Equal to depth of construction and terminated flush with finished surfaces.	2
Walls and Partitions	Equal to depth of construction and terminated flush with finished surfaces.	1
Floors with membrane waterproofing	All floor sleeves to extend minimum of 2" above finished floor level.	3

E. Foundation Wall Penetrations

- 1. The pipe to wall sleeve penetration closure shall be "Pipe Linx" as manufactured by Calpico, Inc. Or use an equal product from the manufactures listed in Article 2.13 Seals

shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely watertight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing changes of cathodic reaction between these two members.

2. Contractor shall determine the required inside diameter of each individual wall opening or sleeve before ordering, fabricating or installing. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and Pipe Linx to assure a watertight joint. If pipe O.D. is non-standard due to coating, insulation, etc., consult manufacturer for assistance before proceeding with wall opening detail

2.3 ESCUTCHEONS

- A. Provide escutcheons on all exposed piping through walls, floors, partitions and ceilings.
- B. Escutcheons shall be held in place by set screws.
- C. Escutcheon Application

Location	
Finished Spaces	Chrome plated brass
Unfinished spaces: including mechanical equipment rooms.	Cast iron

- D. Two-piece or hinged escutcheons will not be permitted.
- E. Escutcheons shall be installed on both sides of pipe penetrations.

2.4 GAUGES

- A. Provide pressure gauges where indicated on the drawings and in accordance with the schedule given below. All gauges shall be provided with snubbers. Gauges shall have 4½" diameter dial, white coated with black figures and graduations. Gauges shall be H.O. Trerice Co. Shutoff cock shall be provided between gauge and piping to permit gauge removal while system is under pressure. Or use an equal product from the manufactures listed in Article 2.13
- B. Gauges shall have graduation such that at normal working pressure the needle is in the center of the field.
- C. Gauge Schedule

1. Gauge Location

Inlet and Outlet of Pumps
 Sprinkler Floor Control Valves
 Inlet and Outlet of PRV's
 Inlet and Outlet of Dry Pipe Valves
 Main Water Service
 Top and Bottom of all Risers

2.5 SIAMESE CONNECTIONS

- A. Siamese shall be cast brass body with drop clappers with a polished chrome plated brass plate lettered "AUTO. SPKR.", "STANDPIPE", "DRY STANDPIPE" "AUTO. SPKR. STANDPIPE".
- B. Siamese shall be flush type with back outlet, bottom outlet or top outlet as required. Inlet and outlet sizes shall be as shown or as required and shall be Potter-Roemer Series 5020. Or use an equal product from the manufactures listed in Article 2.13
- C. Siamese connection shall be rated for the maximum pump pressure to which it could be exposed.

2.6 AUTOMATIC BALL DRIP

- A. Potter-Roemer Fig. No. 5982, cast brass angle or straight connection, $\frac{3}{4}$ " male N.P.T. both ends.

2.7 SIGNS

- A. Signs shall be as manufactured by Central Sprinkler Corp. Types "A", "B", "D", and "E".
- B. Signs mounted on the exterior of the building shall be cast brass with 1" high raised lettering.
- C. Finish material and final location as indicated by Commissioner.

2.8 TOOLS

- A. All special tools for proper operation and maintenance of the equipment provided under this specification shall be delivered to the Commissioner and a receipt request for same.

2.9 LADDERS

- A. Steel ladders shall be provided for access to sprinkler and fire standpipe valves located 7'-0" or more above finish floor. Ladders shall be 12" wide and be securely fastened.

2.10 PIPE LABELING

- A. All piping shall be identified by stenciled lettering, or self adhesive pipe markers which legend conforms to OSHA/ANSI standards including but not limited to the identification of flow direction, pressure, supply/return, pump discharge, sprinkler, fire standpipe, dry sprinkler, etc.
- B. There shall be at least one lettering identification for each pipe in each space and at all valve locations.
- C. For painted identification use color sharply contrasting with background. If necessary, paint a strip background of black or white to obtain contrast.
- D. Vertical piping shall be labeled at each floor. Horizontal piping shall be labeled every 10', both sides of partitions, before and after turns, and close to valves and flanges.
- E. Each set consisting of one (1) band on which the name of the service is printed in black letters not less than 1½ inches high, and one (1) band on which is printed a black directional arrow. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.

- F. Adhesive Bands: "Quick-Label B-350 Perma-Code Film Markers" (W.H. Brady Company). Or use an equal product from the manufactures listed in Article 2.13

2.11 VALVE & EQUIPMENT TAGGING

- A. Tag valves with identifying number and system. Number valves by floor level.
- B. For valves, etc., use metal (brass, stainless steel or aluminum) tags, 3" minimum in diameter, with 1½" white painted letters with a red background. Attach tags with chain of same material.
- C. Prepare lists of all tagged valves showing location, floor level, tag number and use. Prepare separate lists for each system. Mount lists under a sheet of clear acrylic in Equipment Room. Include copies in each maintenance manual.
- D. Provide charts showing equipment lubrication points, lubrication required and frequency, and columns for date and initials.
- E. Stencil equipment with identifying letters and numbers as used on drawings. Where space is available use full name of equipment.
- F. Identify all controls such as motor starters not in motor control centers, float switches and alarms.

2.12 PAINTING

- A. Exposed black steel piping, pipe covering, equipment and support piping and enclosures shall be given two coats of paint.
- B. All pipe hangers, anchors and supports shall be given a zinc chromate primer before installation.

2.13 ACCEPTABLE MANUFACTURERS

- A. Pressure Gauges
 - 1. H. O. Trerice
 - 2. Weksler Instruments Corp.
 - 3. Taylor Sybron Corp.
 - 4. Or Approved Equal
- B. Siamese Connections
 - 1. Potter-Roemer
 - 2. Elkhart Brass
 - 3. Croker
 - 4. Or Approved Equal
- C. Automatic Ball Drip
 - 1. Potter-Roemer
 - 2. Elkhart-Brass
 - 3. Croker
 - 4. Or Approved Equal

PART 3 - EXECUTION

3.1 TESTS

- A. During the progress of the work, test the fire standpipe and sprinkler systems piping. Such tests shall be made in the presence of the Engineer, and all other authorities having jurisdiction.
- B. The piping shall be tested in accordance with local requirements and NFPA Code requirements, but in no case shall the system be tested at less than 200 psig hydrostatic pressure for two (2) hours.
- C. Defects disclosed by the tests shall be repaired or replaced with new work. Tests shall be repeated as directed, until all work is proven satisfactory.
- D. Take due precautions to prevent damage to the building and its contents as a result of such tests. Repair any damage caused.
- E. During construction, properly cap all lines and equipment nozzles so as to prevent the entrance of sand, dirt, etc. Each system of piping shall be flushed (for the purpose of moving grit, dirt, sand, etc., from the piping for as long a time as is required to thoroughly clean the system).

END OF SECTION 21 05 95

SECTION 21 05 95 – FIRE PROTECTION BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fire protection systems in accordance with the Contract Documents.
- B. Provide a temporary fire standpipe system during construction.

1.2 WORK INCLUDED

- A. Sleeves.
- B. Foundation Wall Sleeves
- C. Escutcheons.
- D. Gauges.
- E. Siamese Connections.
- F. Signs
- G. Tools
- H. Labeling
- I. Valve and Equipment Tagging
- J. Painting

1.3 SUBMITTALS

- A. Shop Drawings: Detail construction drawings indicating materials, performance data, sleeve locations, etc.
- B. Product Data: Manufacturers' catalogs, brochures.

1.4 QUALITY ASSURANCE

- A. Local Building Code.
- B. New York City Building Code, 2008
- C. National Fire Protection Association (NFPA)
- D. Underwriters Laboratories (U.L.)
- E. Factory Mutual (FM)

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, materials and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.
- B. All hose threads shall conform with local Fire Department requirements.

2.2 SLEEVES

- A. Provide sleeves for each pipe passing through walls, partitions, and floors.
- B. Sleeve Materials

Type	Sleeve Materials
1	#18 gauge, galvanized steel
2	Standard weight galvanized steel pipe
3	Cast iron body with flashing clamp and underdeck clamp similar to J.R. Smith, figure 1720.

C. Sleeve Sizes

- 1. Sleeves shall be of adequate diameter to allow pipe, insulation, and fire stopping to fit.
- 2. Sleeves shall provide 1" minimum clearance around pipes smaller than 4" and 2" minimum clearance around pipes 4" and larger.

D. Sleeve Lengths

Location	Sleeve Length	Material
Floor	All floor sleeves to extend minimum of 2" above finished floor level.	2
Stair Landing	Equal to depth of construction and terminated flush with finished surfaces.	2
Walls and Partitions	Equal to depth of construction and terminated flush with finished surfaces.	1
Floors with membrane waterproofing	All floor sleeves to extend minimum of 2" above finished floor level.	3

E. Foundation Wall Penetrations

- 1. The pipe to wall sleeve penetration closure shall be "Pipe Linx" as manufactured by Calpico, Inc. Seals shall be modular mechanical type, consisting of interlocking synthetic

rubber links shaped to continuously fill the annular space between the pipe and wall sleeve opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely watertight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing changes of cathodic reaction between these two members.

2. Contractor shall determine the required inside diameter of each individual wall opening or sleeve before ordering, fabricating or installing. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and Pipe Linx to assure a watertight joint. If pipe O.D. is non-standard due to coating, insulation, etc., consult manufacturer for assistance before proceeding with wall opening detail

2.3 ESCUTCHEONS

- A. Provide escutcheons on all exposed piping through walls, floors, partitions and ceilings.
- B. Escutcheons shall be held in place by set screws.
- C. Escutcheon Application

Location	
Finished Spaces	Chrome plated brass
Unfinished spaces: including mechanical equipment rooms.	Cast iron

- D. Two-piece or hinged escutcheons will not be permitted.
- E. Escutcheons shall be installed on both sides of pipe penetrations.

2.4 GAUGES

- A. Provide pressure gauges where indicated on the drawings and in accordance with the schedule given below. All gauges shall be provided with snubbers. Gauges shall have 4½" diameter dial, white coated with black figures and graduations. Gauges shall be H.O. Trerice Co. Shutoff cock shall be provided between gauge and piping to permit gauge removal while system is under pressure.
- B. Gauges shall have graduation such that at normal working pressure the needle is in the center of the field.
- C. Gauge Schedule

1. Gauge Location

Inlet and Outlet of Pumps
 Sprinkler Floor Control Valves
 Inlet and Outlet of PRV's
 Inlet and Outlet of Dry Pipe Valves
 Main Water Service
 Top and Bottom of all Risers

2.5 SIAMESE CONNECTIONS

- A. Siamese shall be cast brass body with drop clappers with a polished chrome plated brass plate lettered "AUTO. SPKR.", "STANDPIPE", "DRY STANDPIPE" "AUTO. SPKR. STANDPIPE".
- B. Siamese shall be flush type with back outlet, bottom outlet or top outlet as required. Inlet and outlet sizes shall be as shown or as required and shall be Potter-Roemer Series 5020.
- C. Siamese connection shall be rated for the maximum pump pressure to which it could be exposed.

2.6 AUTOMATIC BALL DRIP

- A. Potter-Roemer Fig. No. 5982, cast brass angle or straight connection, 3/4" male N.P.T. both ends.

2.7 SIGNS

- A. Signs shall be as manufactured by Central Sprinkler Corp. Types "A", "B", "D", and "E".
- B. Signs mounted on the exterior of the building shall be cast brass with 1" high raised lettering.
- C. Finish material and final location as indicated by Architect.

2.8 TOOLS

- A. All special tools for proper operation and maintenance of the equipment provided under this specification shall be delivered to the Commissioner and a receipt request for same.

2.9 LADDERS

- A. Steel ladders shall be provided for access to sprinkler and fire standpipe valves located 7'-0" or more above finish floor. Ladders shall be 12" wide and be securely fastened.

2.10 PIPE LABELING

- A. All piping shall be identified by stenciled lettering, or self adhesive pipe markers which legend conforms to OSHA/ANSI standards including but not limited to the identification of flow direction, pressure, supply/return, pump discharge, sprinkler, fire standpipe, dry sprinkler, etc.
- B. There shall be at least one lettering identification for each pipe in each space and at all valve locations.
- C. For painted identification use color sharply contrasting with background. If necessary, paint a strip background of black or white to obtain contrast.
- D. Vertical piping shall be labeled at each floor. Horizontal piping shall be labeled every 10', both sides of partitions, before and after turns, and close to valves and flanges.
- E. Each set consisting of one (1) band on which the name of the service is printed in black letters not less than 1½ inches high, and one (1) band on which is printed a black directional arrow. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.

- F. Adhesive Bands: "Quick-Label B-350 Perma-Code Film Markers" (W.H. Brady Company).

2.11 VALVE & EQUIPMENT TAGGING

- A. Tag valves with identifying number and system. Number valves by floor level.
- B. For valves, etc., use metal (brass, stainless steel or aluminum) tags, 3" minimum in diameter, with 1½" white painted letters with a red background. Attach tags with chain of same material.
- C. Prepare lists of all tagged valves showing location, floor level, tag number and use. Prepare separate lists for each system. Mount lists under a sheet of clear acrylic in Equipment Room. Include copies in each maintenance manual.
- D. Provide charts showing equipment lubrication points, lubrication required and frequency, and columns for date and initials.
- E. Stencil equipment with identifying letters and numbers as used on drawings. Where space is available use full name of equipment.
- F. Identify all controls such as motor starters not in motor control centers, float switches and alarms.

2.12 PAINTING

- A. Exposed black steel piping, pipe covering, equipment and support piping and enclosures shall be given two coats of paint.
- B. All pipe hangers, anchors and supports shall be given a zinc chromate primer before installation.

2.13 ACCEPTABLE MANUFACTURERS

A. Pressure Gauges

1. H. O. Trerice
2. Weksler Instruments Corp.
3. Taylor Sybron Corp.
4. Or Approved Equal

B. Siamese Connections

1. Potter-Roemer
2. Elkhart Brass
3. Croker
4. Or Approved Equal

C. Automatic Ball Drip

1. Potter-Roemer
2. Elkhart-Brass
3. Croker
4. Or Approved Equal

PART 3 - EXECUTION

3.1 TESTS

- A. During the progress of the work, test the fire standpipe and sprinkler systems piping. Such tests shall be made in the presence of the Engineer, and all other authorities having jurisdiction.
- B. The piping shall be tested in accordance with local requirements and NFPA Code requirements, but in no case shall the system be tested at less than 200 psig hydrostatic pressure for two (2) hours.
- C. Defects disclosed by the tests shall be repaired or replaced with new work. Tests shall be repeated as directed, until all work is proven satisfactory.
- D. Take due precautions to prevent damage to the building and its contents as a result of such tests. Repair any damage caused.
- E. During construction, properly cap all lines and equipment nozzles so as to prevent the entrance of sand, dirt, etc. Each system of piping shall be flushed (for the purpose of moving grit, dirt, sand, etc., from the piping for as long a time as is required to thoroughly clean the system).

END OF SECTION 21 05 95

SECTION 21 07 19 – INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide pipe insulation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping Insulation.

1.3 SUBMITTALS

- A. Shop Drawings: Submit insulation shop drawings for each service.
- B. Product Data: Manufacturer's latest published data for materials, equipment and installation.

1.4 QUALITY ASSURANCE

- A. ASTM C335
- B. ASTM C356
- C. ASTM C411
- D. ASTM C547
- E. ASTM E-84
- F. ASTM 225
- G. U.L.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Conform to application schedule specified herein for types and thicknesses of insulation.
- B. Provide insulation (including insulation jacket or facing and adhesives used to adhere the facing or jacket to the insulation) with non-combustible material meeting all Code requirements and fire and smoke hazard ratings as tested by procedure ASTM E-84, National Fire Protection Association 225, and UL 723, not exceeding flame spread 25 and smoke developed 50.

2.2 PIPE INSULATION

- A. Materials
 - 1. Fiberglass Density: All Fiberglass pipe insulation in equipment rooms and/or where exposed, to be of the sectional type having 6 lbs./cu. ft. density. All other fiberglass insulation to be of the 1-piece type having 4 lb. density.
 - 2. Thermal conductivity of fiberglass to be .23 BTU/hr/inch/sq. ft./°F at a mean temperature of 75°F.

3. Thermal conductivity of calcium silicate to be .32 BTU/hr/inch/sq. ft./°F at a mean temperature of 100°F.

B. Insulation Jackets

1. Pipes Concealed and Exposed: Factory applied white fire retardant jacket with self-sealing lap (ASJ) and butt strip. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 or FB 30-35.
2. Vapor jacket permeability to be 0.02 perms.
3. Jacket Puncture Resistance to be 50 units (Beach).
4. Piping Exposed to Outdoors: Cover piping and fittings which are exposed to weather or called for to be weatherproofed, in addition to insulation and finishes specified for piping exposed to outdoors, with a polished aluminum jacket similar to Johns-Manville "Metal-Lok" or approved equal.

C. Application Schedule

1. Piping Exposed to Outdoors and Pipes Subject to Freezing: Cover any piping subject to freezing with 3" of glass fiber insulation.
2. For heat-traced piping, insulation must be sized to accommodate electric cable. Cover with an aluminum jacket, as specified for piping exposed to the weather.

D. Fittings, Valves and Flanges

1. Where manufactured, use factory premolded fittings (of the same material and thickness as the pipe insulation) for all fittings, flanges and valves.
2. Where premolded insulation fittings are not manufactured, insulate all fittings, flanges and valves with mitered segments of the same density as the adjoining pipe covering.
3. Insulate fittings, flanges, valves, etc. for services where calcium silicate insulation is specified as a pipe insulation with mineral wool cement of equal thickness to the pipe insulation and finished with glass cloth.
4. PVC molding pipe fitting covers as manufactured by Zeston are acceptable.

2.3 ACCEPTABLE MANUFACTURERS

A. Insulation

1. Owens Corning Fiberglas
2. Johns Manville
3. Certain-Teed
4. Pittsburgh Corning
5. Or Approved Equal

B. Adhesives and Sealers

1. Benjamin Foster (B-F)
2. Insul-Coustic (I-C)
3. Minnesota Mining and Mfg. Co. (3M)
4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION

- A. Perform all work in strict accordance with the manufacturer's recommendation and the best practice of the trade and the intent of this specification.

- B. Apply all insulation over clean dry surface, butting all sections or surfaces firmly together and finishing as hereinafter specified.
- C. Seal all vapor barriers continuous and throughout against moisture penetration.

3.2 PROTECTION OF INSULATION

- A. Protect pipe insulation at hangers, guides, and rollers by 16 gauge galvanized metal shields (at least 3 times the insulation diameter in length and 1/3 the insulation circumference in width) on the outside of the insulation and vapor barrier. Hold shields in place by straps. Do not pierce the insulation with hangers. Where glass fiber insulation is used on piping 3" and larger, provide half-section of calcium silicate covering of equal thickness at metal shields.
- B. Do not use staples on vapor barrier jackets.

END OF SECTION 21 07 19

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SECTION 21 11 00 – FIRE SUPPRESSION PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials for fire protection systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipes.
- B. Fittings.
- C. Joints.

1.3 SUBMITTALS

- A. Prior to purchase, submit a list of all proposed piping materials including system/material (use Schedule).
- B. Submit complete back-up material where manufacturing specification standards of proposed materials differ from those specified.

1.4 QUALITY ASSURANCE

- A. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- B. Each fitting shall have the manufacturer's name cast, stamped or rolled on.

PART 2 - PRODUCTS

2.1 BLACK STEEL PIPE (SCHEDULE 40)

- A. Pipe: Standard weight black steel pipe, Schedule 40, welded or seamless, with manufacturer's name rolled into each length.
- B. Fittings
 - 1. Threaded: Standard malleable iron couplings with flat band.
 - 2. Welded or Flanged: Standard weight steel.
 - 3. Mechanical Couplings: See Article 2.3.
- C. Joints: Red or white lead and oil or approved compound.
- D. Application
 - 1. Threaded: All sprinkler systems.
 - 2. Welded: All fire standpipe over 175 psi.
 - 3. Mechanical Couplings: Sprinkler and Fire Standpipe (See Article 2.3).

2.2 GALVANIZED STEEL PIPE

- A. Pipe: Standard weight galvanized steel pipe, Schedule 40, with makers name rolled into each length.
- B. Fittings
 - 1. Threaded: Galvanized malleable iron with flat band steam pattern.
 - 2. Mechanical Couplings: See Article 2.3. Rolled groove only.
- C. Joints: Red or white lead and oil or approved compound.
- D. Application: Dry pipe sprinkler system.

2.3 MECHANICAL COUPLINGS

- A. The following fittings are taken from the catalog of Victaulic and are representative of the style and construction required.
- B. Standpipe

Style	Pipe Weight	Pressure Rating	Sizes
77-Flexible	Schedule 40	0-500 PSI	1"-10"
Firelock - Rigid	Schedule 40	0-175 PSI	2"-6"

- C. Sprinkler

Style	Pipe Weight	Pressure Rating	Sizes
77-Flexible	Schedule 10/40	0-500 PSI	1"-10"
Firelock - Rigid	Schedule 40	0-175 PSI	2"-6"
920	Schedule 40	0-175 PSI	2"-3"
921	Schedule 40	0-175 PSI	3"-8"

- D. The following products are not acceptable:
 - 1. FIT (Style 96, 963, 969, 719, 966, 960 & 929)
 - 2. Hooker (Style 922)

2.4 ACCEPTABLE MANUFACTURERS

- A. Mechanical Couplings
 - 1. Victaulic
 - 2. Gustin-Bacon
 - 3. Wheatland Tube Co.
 - 4. Or Approved Equal
- B. Piping
 - 1. Allied Tube and Conduit Corp.
 - 2. Berger Pipe Co.
 - 3. Wheatland Tube Co.

4. Or Approved Equal
- C. Fittings
1. Flagg
 2. Nibco
 3. Stockham
 4. Victaulic
 5. Or Approved Equal

PART 3 - EXECUTION

3.1 JOINTS

- A. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply red lead and oil to male threads only. Clean joint thoroughly of excess jointing material.
- B. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- C. Welded Joints:
 1. Butt welded joints shall be open type by the oxyacetylene torch or electric arc process. Fuse welds thoroughly to the joint edges and extend completely to the bottom of V-groove cut. Weld width to a minimum of 2½ times the pipe wall thickness and to be symmetrical with respect to the center line of joint. Build up welds to obtain a gradual increase in thickness from edge to center and the thickness from edge to center is not to exceed 1¼ times the pipe wall thickness. Make all welds of sound metal, free from laps, gas pockets, slag inclusions, interior protrusions or other imperfections.
 2. Qualify welders to the code for Pressure Piping ANSI B31.1 with certification by the Welding Bureau of Heating, Piping and Air Conditioning Contractors National Association. Welding shall not be started until submission of evidence of qualification.
- D. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- E. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- F. Make joints between pipes of dissimilar metals with dielectric union or flanges.

3.2 PIPE AND FITTINGS

- A. Threads shall be full and clean cut and burrs formed in cutting shall be reamed. In screwing up the pipe, care shall be taken that the pipe does not extend into the fitting obstructing the waterway. Joint compound shall be applied to the threads of the pipe and not to the fittings or sprinklers. Pipe shall be straightened before installation to prevent pockets.
- B. A one-piece reducing fitting shall be used wherever a change is made in the size. The use of bushings or reducing flanges will not be permitted.
- C. Unions shall be used only on pipes 2" and smaller, and provided at connections to each piece of equipment for easy dismantling.
- D. Only shoulder nipples shall be used. Close nipples will not be acceptable.
- E. All fittings and couplings shall be made by the same manufacturer.

END OF SECTION 21 11 00

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SECTION 21 13 13 – WET PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a complete wet pipe sprinkler system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Sprinkler Heads.
- B. Water Flow Switch.
- C. Tamper Switch.
- D. Floor Control Valve
- E. Pressure Reducing Valve.
- F. Pressure Relief Valve.
- G. Piping
- H. Inspectors Test Connection

1.3 SUBMITTALS

- A. Shop Drawings
 - 1. Dimensioned sprinkler layouts.
 - 2. Identification chart and tags for valves and alarm devices.
 - 3. Hydraulic calculations.
- B. Permits and Approvals
 - 1. Arrange and pay for all permits, approvals and tests.

1.4 QUALITY ASSURANCE

- A. Factory Mutual
- B. NFPA 13
- C. New York City Building Code, 2008
- D. New York City Fire Code, 2008
- E. TCRM, 2008

PART 2 - PRODUCTS

2.1 SPRINKLER HEADS

- A. Spray type, with ½" nominal discharge orifice. Ordinary temperature rating 160° - 175° throughout except where special conditions exist which will require higher temperature sprinklers or when indicated on the drawings. All heads shall be U.L. listed and Factory Mutual approved.

2.2 QUICK RESPONSE STANDARD COVERAGE SPRINKLERS

- A. Pendant, upright, horizontal sidewall, and semi-recessed: Sprinklers shall be of all brass frame construction with a coated metal to metal seating mechanism. Sprinklers utilizing non-metal parts in the sealing portion of the sprinkler are strictly prohibited. Sprinklers shall have a quick response frangible bulb type fusible element. Sprinklers to be installed in areas with no ceilings shall be of a brass finish and shall be of adequate temperature for the hazard semi-recessed heads shall have chrome plated recessed escutcheon.
- B. Concealed: Sprinklers shall be of all brass frame construction with a coated metal to metal seating mechanism. Sprinklers utilizing non-metal parts in the sealing portion of the sprinkler are strictly prohibited. Quick response concealed pendent sprinkler orifice shall be standard nominal ½" with a K factor of 5.5. Quick response concealed pendent sprinklers shall be listed for installation in an ordinary hazard occupancy if installed in an ordinary hazard occupancy. Concealed pendent sprinkler shall have a cover that is a push-on, thread-off assembly. Quick response concealed pendent sprinklers shall be Viking Horizon Mirage Quick Response Model B-2 or an equal product from the manufacturers listed in Article 2.9.

2.3 QUICK RESPONSE EXTENDED COVERAGE SPRINKLERS

- A. Pendant: Sprinklers shall be of all brass frame construction with a coated metal to metal seating mechanism. Extended coverage pendent sprinklers shall have a quick response frangible bulb type fusible element. Extended coverage quick response pendent sprinkler shall be installed in conformance with the manufacturer's listing and installation guidelines. Extended coverage quick response pendent sprinklers shall be UL listed for light hazard occupancies. Extended coverage quick response pendent sprinklers shall have nominal orifices of ½" and 17/32" with K factors of 5.5 and 8.0, respectively. Extended coverage quick responses sprinklers shall be Viking Microfast Model M Quick Response Extended Coverage or an equal product from the manufacturers listed in Article 2.9.
- B. Concealed: Sprinklers shall be of all brass frame construction with a coated metal to metal seating mechanism. Sprinklers utilizing non-metal parts in the sealing portion of the sprinkler are strictly prohibited. Quick response extended coverage concealed pendent sprinkler orifice shall be standard nominal ½" with a K factor of 5.5. Quick response extended coverage concealed pendent sprinklers shall be listed for extended coverage application. Concealed pendent sprinkler shall have a cover that is a push-on, thread-off assembly. Sprinklers shall be Viking Horizon Mirage Quick Response Extended Coverage Model B-1 or an equal product from the manufacturers listed in Article 2.9.
- C. Sidewall: Sprinklers shall be of all brass frame construction with a coated metal to metal seating mechanism. Sprinklers utilizing non-metal parts in the sealing portion of the sprinkler are strictly prohibited. Sidewall sprinklers shall have a quick response frangible bulb type fusible element. Quick response horizontal sidewall sprinkler shall be installed in conformance with the manufacturer's installation guidelines. Sidewall sprinklers shall be Viking Microfast Model M/M-5 Quick Response Extended Coverage Horizontal Sidewall or an equal product from the manufacturers listed in Article 2.9.

2.4 WATER FLOW SWITCH

- A. Paddle type, inserted into horizontal piping systems. The paddle shall actuate a pneumatic time-delay mechanism between the paddle stem and the micro-switch. After the preset time delay, the micro-switch shall operate and either open or close the electrical circuit. Time delays shall be adjustable from 0 to 70 seconds. Switch shall be similar to Reliable Model A1 or an equal product from the manufacturers listed in Article 2.9.

2.5 TAMPER SWITCH

- A. Valve supervisory switches shall be on each valve as designated on the drawings. Switches shall be mounted so not to interfere with the normal operation of the valve and shall be adjusted to operate within two revolutions of the valve control or when the stem has moved no more than one-fifth of the distance from its normal position. The switch mechanism shall be contained in a weatherproof die-cast aluminum housing which shall provide 3/4" tapped conduit entrance and incorporate the necessary facilities for attachment to the valve. Switch housings shall be finished in red baked enamel. The switch mechanism shall have a minimum rated capacity of 7 amp, 125 volt, 0.25 amp., 24 volt D.C. The entire assembly shall be tamper proof and arranged to cause a switch operation if the housing cover is removed or if the unit is removed from its mounting. Tamper switch shall be similar to Potter-Roemer 6220 or 6221 or an equal product from the manufacturers listed in Article 2.9.

2.6 PRESSURE REDUCING VALVE

- A. Valve shall maintain a constant downstream pressure regardless of varying inlet pressure. Valve shall be a hydraulically-operated, diaphragm-actuated, globe or angle pattern valve. It shall contain a resilient, synthetic rubber disc, having a rectangular cross-section, contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat.
- B. The diaphragm assembly containing a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. This diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. The diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface.
- C. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve or pilot controls. All necessary repairs shall be possible without removing the valve from the line.
- D. The pilot control shall be direct-acting, adjustable, spring-loaded, normally open, diaphragm valve, designed to permit flow when controlled pressure is less than the spring setting. The control system shall include a fixed orifice.
- E. This valve shall be U.L. listed and shall be similar to a Model 90-21 Pressure Reducing Valve as manufactured by Cla-Val Co or an equal product from the manufacturers listed in Article 2.9.

2.7 PRESSURE RELIEF VALVE

- A. Furnish and install where indicated on drawings or downstream of all pressure reducing valves a 3/4" cast brass pressure relief valve similar to Potter-Roemer 4059.

2.8 INSPECTOR'S TEST CONNECTIONS (OPEN DRAIN)

- A. Bronze female pipe connection with orifice equivalent to one sprinkler head flow similar to Reliable Model A.

2.9 ACCEPTABLE MANUFACTURERS

A. Sprinkler Heads

1. Reliable
2. Central
3. Viking
4. Grinnell
5. Or Approved Equal

B. Water Flow Switches

1. Potter-Roemer
2. Potter Electric
3. Reliable
4. Viking
5. Central
6. Or Approved Equal

C. Tamper Switch

1. Potter-Roemer
2. Potter Electric
3. Reliable
4. Or Approved Equal

D. Sprinkler Floor Control Valve Cabinet

1. Potter-Roemer
2. Elkhart Brass
3. Croker
4. Or Approved Equal

E. Pressure Reducing Valve

1. Star Sprinkler
2. Potter-Roemer
3. Cla-Val
4. Gunzenhauser
5. Or Approved Equal

F. Pressure Relief Valve

1. Potter-Roemer
2. Elkhart Brass
3. Reliable
4. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Information included in this specification and of various agency requirements are given as a guide only. The contract documents do not relieve Contractor's responsibility to provide all work and equipment necessary to complete the installation in accordance with all requirements.

3.2 INSTALLATION

- A. No pipes or other apparatus shall be installed so as to interfere in any way with the full swing of the doors. The arrangement, positions and connections of pipes, drains, valves, etc., shown on the drawings, shall be taken as a close approximation and while they shall be followed as closely as possible, the right is reserved by the Commissioner to change the locations to accommodate any conditions which may arise during the progress of the work without additional compensation to this contractor for such changes, provided that the changes are requested prior to the installation of this work.
- B. All piping shall drain back to the risers or be provided with drain valves. Special precautions must be taken to avoid electrical work and ventilation ducts, and no piping shall pass below lighting fixtures in luminous ceilings or under skylights.
- C. All piping shall be unexposed except in no-ceiling areas. Where required, heads shall be located below ducts. Diffusers and lighting fixtures take preference in room layout.
- D. In areas with restricted head room, heads and piping shall be tight to ceilings and provided with guards.
- E. No heads shall be nearer than 6 inches to a ceiling support, and where 12" x 12", 24" x 24" or 24" x 48" ceiling panels are used, the heads shall be located in the center of the panel.
- F. Install sprinkler heads in all areas on a true axis line in both directions with a maximum deviation from the axis line of 1/2" plus or minus. In acoustical tile ceilings, sprinkler heads shall be located on center of tile. At the completion of the installation, remove and reinstall any heads found to exceed the above mentioned tolerances.
- G. Where sprinklers are installed in areas without hung ceiling, install sprinklers both above and below all ductwork 48" and larger in width or where the total aggregate of multiple ducts exceeds 48" in width or length.

3.3 SPRINKLER COVERAGE

- A. For determination of sprinkler systems, spacing and sizing, the following coverage ratings as listed in NFPA 13 and as listed by the insurance company for this project shall be followed. Also comply with local authorities' requirements.
- B. Provide sprinklers where shown on the drawings.
- C. Hydraulically Calculated System: The system shall be hydraulically designed to provide a density based on NFPA requirements and the requirements of the insurance company and the local authorities.

AREA	HAZARD CLASSIFICATION	DENSITY GPM/SQ. FT.	AREA OF APPLICATION
Offices	Light	.10	1500
Backstage Area	Ordinary	.16	1500
Canopy/Outside	Ordinary	.16	1500

- D. Escalator: A curtain of sprinkler heads on 6 feet 0 inch centers shall be provided to encircle the escalator opening at the draft curtain to conform to NFPA 13, 4-4.8.2.3 and A4-4.8.2.3.

3.4 DRAINS AND TEST PIPES

- A. Provide drains at base of riser, valved sections inside building, and at other locations indicated or requiring same for complete drainage of systems. Siamese drains shall be automatic ball drips. Other drains shall be valves and/or plugs as indicated and/or required. Pipe drains to locations as required.
- B. Test pipes shall be valved and piped to discharge through proper orifice at approved locations.

END OF SECTION 21 13 13

SECTION 22 00 02 – PLUMBING SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the plumbing systems as called for in the contract documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

1.3 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Commissioner, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the Commissioner and Engineer. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.
- C. Indemnify the City of New York and the Commissioner against loss, liability, damage or expense, including attorneys' fees, in connection with any claim resulting from damage which may be asserted by any third party.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of EPA, U.L. and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.

1.5 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations

1.	AABC	American Association of Balancing Contractors
2.	ABMA	American Boiler Manufacturers Association
3.	ADC	Air Diffusion Council
4.	AGA	American Gas Association
5.	AMCA	Air Movement and Control Association
6.	ANSI	American National Standards Institute
7.	ARI	Air Conditioning and Refrigeration Institute
8.	ASA	Acoustical Society of America
9.	ASHRAE	American Society of Heating, Refrigerating, and Conditioning Engineers
10.	ASME	American Society of Mechanical Engineers
11.	ASPE	American Society of Plumbing Engineers
12.	ASTM	American Society For Testing and Materials
13.	ASSE	American Society of Sanitary Engineers
14.	AWWA	American Water Works Association
15.	AWS	American Welding Society
16.	CTI	Cooling Tower Institute
17.	EPA	Environmental Protection Agency
18.	FM (FMS)	Factory Mutual (Factory Mutual System)
19.	FS	Federal Specifications
20.	IEEE	Institute of Electrical and Electronic Engineers
21.	NAPHCC	National Association of Plumbing Heating & Cooling Contractors
22.	NEBB	National Environmental Balancing Bureau
23.	NEC	National Electric Code
24.	NEMA	National Electrical Manufacturers Association
25.	NFPA	National Fire Protection Association
26.	OSHA	Occupational Safety and Health Administration
27.	SAE	Society of Automotive Engineers
28.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
29.	U.L.	Underwriters Laboratories

B. Definitions

1. "PROVIDE" means to "Furnish" and "Install".
2. "INSTALL" means to join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York, complete and ready for regular operation, the particular work referred to.
3. "FURNISH" means to purchase and supply all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for the proper and complete application for the particular work referred to.
4. "AS DIRECTED" means as directed by the Commissioner, or his representative.
5. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings or shafts.
6. "SUBMIT" means submit to Engineer for review. Refer to Architectural General and Special Conditions for proper procedures.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Engineer.

- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project will not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Commissioner and relocate work incorrectly installed as determined by the Commissioner.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Install materials and equipment with qualified trades people.
- G. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- H. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards, and as approved by local authorities having jurisdiction.
- I. Fully lubricate equipment when installed.
- J. Do not operate gas, or water systems until piping has been cleaned and startup strainers are in place.
- K. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- L. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- M. Locate valves, traps, damper operators, access doors, etc., to be easily accessible, either in mechanical spaces or through access panels as specified hereinafter, or as required. Coordinate and obtain Commissioner's and Engineer's approval of access panel locations.
- N. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Engineer before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- O. Pressure vessels and relief valves shall be selected, built and labeled in accordance with ASME. Obtain a certificate from the City Inspector having jurisdiction showing such acceptance, and mount this certificate in a black frame under glass or laminated plastic adjacent to each pressure vessel and relief valve.
- P. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.
- Q. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.

2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Within two (2) months after notice to proceed by the City of New York or Commissioner, submit to the Engineer for review, a complete typed list of all mechanical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Within four (4) months after notice to proceed by the City of New York or Commissioner, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal; the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Engineer. Prior to submission of the shop drawings, product data and samples to the Engineer; review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.
- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.

2.3 REVIEWS

- A. Commissioner's and/or Engineer's review is for general compliance with the design concept and contract documents. Markings or comments or the lack thereof does not relieve the Contractor from compliance with the project plans and specifications. The Contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing his work in a safe manner, and for coordinating his work with that of other trades.
- B. No part of the work shall be started in the shop or in the field until the Commissioner and/or Engineer have reviewed the shop drawings and samples for that portion of the work.
- C. A minimum period of ten (10) working days, exclusive of transmittal time, will be required in the Engineer's office each time a shop drawing, product data and/or samples are submitted for review. This time period must be considered by the Contractor when scheduling his work.
- D. Submit one sepia transparency and two prints of all sheet metal and piping drawings. Submit six (6) copies of catalog cuts.
- E. Submissions will be stamped as follows:

No Exceptions Noted []:	When directed, fabrication, manufacture or construction may proceed providing submittal complies with the Contract Documents.
Exceptions Noted []:	Work may proceed as above so long as the engineer's notations are complied with. [] No Resubmission Required.

	<input type="checkbox"/> Resubmit For Record Only.
Revise and Resubmit <input type="checkbox"/> :	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.

2.4 ALTERNATIVE MATERIALS AND EQUIPMENT

- A. Contract Documents are based on materials specified and on equipment manufacturers indicated on the Drawings. Approval by Engineer of equipment manufacturers other than indicated on the Drawings or materials other than specified does not relieve Contractor of any responsibility to provide equipment and materials which will meet the performance as stated or implied by the Contract Documents.
- B. Only those equipment manufacturers listed in individual sections are acceptable for this project, subject to requirements of contract documents.
- C. Submit proposals to supply alternative materials or equipment, in writing, to the Engineer with sufficient lead time for review by Commissioner and Engineer prior to the date equipment must be ordered to maintain project schedule. Contractor submitting alternative will reimburse Commissioner for all costs associated with the review of the proposed alternative whether alternative is accepted or rejected. Include the following information with the proposal.
 - 1. A description of the difference between the contract requirements and that proposed; the comparative features of each; and the effect of the change on the end result performance. Include the impact of all changes on other contractors and acknowledge the inclusion of implementation costs.
 - 2. A list of the contract requirements that must be revised if the change is accepted, including any suggested specification revisions.
 - 3. Include a description and estimate of costs the City of New York may incur in implementing the change, such as test, evaluation, operating and support costs.
 - 4. A projection of any effects the proposed change would have on collateral costs to the City of New York.
 - 5. A statement of the time by which a contract modification accepting the change must be issued, noting any effect on the contract completion time or the delivery schedule.
 - 6. A statement indicating the reduction to the contract price if the Commissioner accepts the change. Be responsible for appropriate modifications to all trades.
- D. Include all revisions required to adapt alternatives in such proposals, including revisions by other trades. No increase in the contract price will be considered to accommodate the use of alternative equipment.
- E. Wherever operating results such as quantity delivered or pressure obtained are scheduled, or when the make and size of apparatus, for which such quantities are readily determinable, is specified, the substitution being proposed must conform substantially to the quantities specified or implied. The substitution must fit into available space conditions and must function properly in coordination with the rest of the system.

PART 3 - EXECUTION

3.1 FEES

- A. Pay all required fees.
- B. Pay royalties or fees required in connection with the use of patented devices and systems.
- C. Provide controlled inspection where required by local authorities or by these specifications.

3.2 DRAWINGS & PRODUCT DATA

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Engineer's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- D. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- E. Prepare and submit detailed shop drawings for ductwork piping work and other distribution services in 3/8" = 1'-0" scale, including locations and sizes of openings in floor decks, walls and roofs.
- F. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Engineer, or for deviations from requirements in the Contract Documents. Understand clearly that the Engineer's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- G. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Engineer and will be returned to the Contractor for resubmittal.
- H. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Commissioner, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

3.3 CONTRACTOR'S COORDINATION DRAWINGS

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.

- B. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as piping, busway, conduit, ductwork, etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have signed-off by the other subcontractors and the General Contractor prior to the installation of the work in the area covered by the specific drawing.
- C. Indicate piping loads and support points for all piping 4" and larger, racked piping, racked conduit, and busway, and submit to the Structural Engineer for review and approval. Indicate the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all lines. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.
- D. This requirement for Coordination Drawings is not authorization for the Contractor or Subcontractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, eight (8) inch high zone directly above the ceiling for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- E. Work installed which interferes with work of any other trade will be corrected at no cost to the project.

3.4 COORDINATION OF WORK

- A. The plumbing drawings show the general arrangement of equipment, ductwork, piping and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- C. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto with sufficient access space, including finished suspended ceilings.
- D. Wherever work interconnects with work of other trades, coordinate with other trades. Insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (valves, dampers, coils, cleanouts, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- E. Consult with other trades regarding equipment so that, wherever possible, motors, motor controls, pumps and valves are of the same manufacturer.
- F. Furnish and set sleeves for passage of pipes, ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each pipe and duct passing through building surfaces.
- G. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc., which pass through rated walls, partitions and floors.
- H. Provide detailed information on openings and holes required in precast members for mechanical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- I. Provide required supports and hangers for ductwork, piping and equipment, designed so as not to exceed allowable loadings of structures.

- J. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Engineer and obtain from him written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- K. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Engineer for review. At completion include a set of such drawings with each set of as-built drawings.
- L. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- M. Adjust location of pipes, ducts, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
 - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
 - 2. Make offsets, transitions and changes in direction in pipes and ducts as required to maintain proper head room and pitch on sloping lines. Furnish and install traps, air vents, drains, etc., as required to effect these offsets, transitions and changes in direction.
- N. Install plumbing work to permit removal (without damage to other parts) of coils, heat exchanger plates and tube bundles, fan shafts and wheels, filters, belt guards, sheaves and drives, and other parts requiring periodic replacement or maintenance. Arrange pipes, ducts, and equipment to permit access to valves, cocks, traps, starters, motors, and control components, and to clear the openings of swinging doors and access panels.
- O. In cases of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instructions from the Commissioner and/or Engineer.
- P. Immediately upon the award of this Contract, but prior to commencing any work, confer together with designated major subcontractors, with the Commissioner and Engineer concerning the work under this Contract.

3.5 CUTTING AND PATCHING

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of ductwork, piping or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc., using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner approved by the Commissioner.

- C. Where piping or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

3.6 RESPONSIBILITY FOR EVALUATION

- A. The Engineer makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

3.7 FIRE ACCESS TO FIRE APPARATUS

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

3.8 EQUIPMENT PAD AND ANCHOR BOLTS

- A. Concrete pads for various pieces of equipment will be furnished by the General Contractor under another Division. Pads will be provided in all mechanical equipment rooms. This shall include floor mounted equipment, equipment mounted on legs and pipe support stands. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire mesh. Trowel tops and sides of pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS" for dimensional guidance in sizing pads.
- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

3.9 DELIVERY, DRAYAGE AND HAULING

- A. Include all drayage, hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.
- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-

assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the City of New York.

3.10 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the Commissioner, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.
- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

3.11 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.
- C. Provide drip pans under all piping installed in any electrical equipment room. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill into floor drain or service sink.

3.12 EQUIPMENT GUARDS

- A. Provide easily removable expanded metal guards for all moving parts of machinery. Provide tachometer openings in the guards at least 2" in diameter, for all belt-driven or variable speed machinery. Comply with OSHA requirements for all equipment guards.

3.13 LUBRICATION

- A. Provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a metallic lubrication tube with suitable fitting to an accessible location and suitably identify it.
- B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated with a lubricant recommended by the equipment manufacturer until the Commissioner issues a Certificate of Substantial Completion for the specific equipment item or system.

3.14 DATE OF COMPLETION AND TESTING OF MECHANICAL SYSTEMS

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.

- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Engineer and Commissioner for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

3.15 OPERATING INSTRUCTIONS

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.

3.16 OPERATING AND MAINTENANCE BOOKS

- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit three (3) final copies of operating and maintenance data books for review at least ten (10) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Engineer six (6) months after notice to proceed has been given by the City of New York or Commissioner. Include in the initial copies all the information in Paragraph E. below, except Item E.4.
- D. Maintenance instruction manuals to include complete oiling, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads.
- E. Include the following information where applicable:
 - 1. Identifying name and mark number.
 - 2. Locations (where several similar items are used, provide a list).
 - 3. Complete nameplate data.
 - 4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
 - 5. Parts list.
 - 6. Performance curves and data.
 - 7. Wiring diagrams.
 - 8. Lubrication charts.
 - 9. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
 - 10. List of spare parts recommended for normal service requirements.
 - 11. Assembly and disassembly instructions with exploded view drawings where available.
 - 12. Troubleshooting diagnostic instructions where applicable.

3.17 RECORD DRAWINGS

- A. Maintain on a daily basis at the project site a complete black and white set of "As-Built Drawings", reflecting an accurate dimensional record of all deviations between work shown on drawings and that actually installed.

- B. Record dimensions clearly and accurately to delineate the work as installed; suitably identify locations of all equipment by at least two dimensions to permanent structures. In addition, mark the Record Drawings to show the precise location of concealed work and equipment, including concealed or embedded piping and valves and all changes and deviations in the mechanical work from that shown on the Contract Documents. This requirement is not construed as authorization for the Contractor to make changes in the layout or work without written instructions from the Engineer.
- C. Upon completion of the installation, obtain from the Engineer, a complete set AutoCAD files with Engineer's seal and firm name removed. Enter thereon, in a neat and accurate manner, a complete record of all revisions of the original drawings, as actually installed. Bear the cost for transparencies and for making required changes. Submit one (1) set of black and white prints of these revised transparencies to the Engineer for review of completeness. After review by the Engineer, make necessary changes to transparencies and then deliver them to the Engineer for transmittal to the Commissioner. Engineer will not review these drawings for accuracy nor will the Engineer bear any responsibility for accuracy or completeness.
- D. Upon completion of the installation, obtain from the Engineer, a complete set of CAD files on 700MG CD-ROM with Engineer's firm name removed. Enter thereon, in an accurate manner, a complete record of all revisions of the original drawings, as actually installed. Bear the cost for the CAD files and for making required changes. The Engineer shall be reimbursed \$10/file for the CAD files prior to their release to the Contractor. Submit one (1) set of black and white prints of these revised files to the Engineer for review of completeness. After review by the Engineer, make necessary changes to CAD files and then deliver them to the Engineer for transmittal to the Commissioner. Engineer will not review these drawings for accuracy nor will the Engineer bear any responsibility for accuracy or completeness.
- E. Mark all As-Built Drawings on the front lower right hand corner with a rubber stamp impression that states the following:

"AS-BUILT DRAWINGS" (3/8" high letters)
To be used for recording Field Deviations and
Dimensional Data Only." (5/16" high letters).
- F. The Record Drawings will also consist of a set of prints of the final "Signed Off" Contractor's "Coordination Drawings" prepared by the Subcontractors.

3.18 CERTIFICATION

- A. Any certifications required by the Specifications, in addition to those required for shop drawings, product data, equipment and other items, are to be so certified by the Commissioner, a Partner, or a Corporate Officer of the firm required to provide the Certification, or by another person duly authorized to sign binding agreements for and in behalf of the City of New York, Partner or Corporation.

3.19 EARLY OCCUPANCY

- A. Be responsible for completing those systems which are necessary to allow partial occupancy of the buildings even if systems in the unoccupied areas are incomplete. Refer to the Section entitled "Special Conditions" in the Architectural Specifications Documents for the schedule completion dates assigned to the various portions of the project.
- B. Verify requirements for temporary occupancy with the local Building Department.

END OF SECTION 22 00 02

SECTION 22 05 17 – SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide sleeves and U.L. approved fire stopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.
- C. Sleeves.

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site. Literature shall indicate product characteristics, typical use, performance and limitation criteria and test data.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. U.L. Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings, and approved UL system number.
- E. Engineering Judgements: Submit manufacturer's drawings for all non-standard applications where no U.L. tested system exists. All drawings must indicate the "Tested" U.L. system upon which the judgement is based so as to assess the relevance of the judgement to some known performance.
- F. Submit manufacturer's installation procedures for each type of product.
- G. Approved Applicator: Submit document from manufacturer wherein manufacturer recognizes the installer as qualified or submit a list of past projects to demonstrate capability to perform intended work.
- H. Upon completion, installer shall provide written certification that materials were installed in accordance with the manufacturer's installation instruction and details.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports. Field inspections shall be carried out by the firestop manufacturer to verify that the installation is in accordance with the manufacturer requirements.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.

- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.
- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.
- E. Fire stopping materials shall be asbestos and lead free and shall not incorporate or not require the use of hazardous solvents.
- F. Fire stopping sealants must be flexible, allowing for normal pipe movement.
- G. All fire stopping materials shall be manufactured by one manufacturer.
- H. Installation of fire stopping systems shall be performed by a Contractor (or Contractors) trained or approved by the firestop manufacturer.
- I. Material used shall be in accordance with the manufacturer's written installation instructions.
- J. Submit a line-by-line statement of compliance or non-compliance with this specification section.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 SLEEVES

- A. Provide sleeves for each pipe passing through walls, partitions, and floors.
- B. Sleeve Materials

Type	Sleeve Materials
1	#18 gauge, galvanized steel.

- C. Sleeve Sizes
 - 1. Sleeves shall be of adequate diameter to allow pipe, insulation, and fire stopping to fit.
- D. Sleeve Lengths

Location	Sleeve Length
Floor	All floor sleeves to extend minimum of 2" above finished floor level.
Walls and Partitions	Equal to depth of construction and terminated flush with finished surfaces.

E. Foundation Wall Penetrations

1. The pipe to wall sleeve penetration closure shall be "Pipe Linx" as manufactured by Calpico, Inc. Seals or approved equal as listed under section F. Pipe to wall sleeve penetration shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall sleeve opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely watertight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing chances of cathodic reaction between these two members.
2. Contractor shall determine the required inside diameter of each individual wall opening or sleeve before ordering, fabricating or installing. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and Pipe Linx to assure a watertight joint. Or approved equal as listed under section F. If pipe O.D. is non-standard due to coating, insulation, etc., consult manufacturer for assistance before proceeding with wall opening detail.

F. Acceptable Manufacturers

1. Link Seal
2. F.W. Webb Co
3. Johnson Bros.
4. Or Approved Equal.

2.3 FIRE STOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple pipes against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
 1. Penetrations for the passage of piping through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
 2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.4 MATERIALS

- A. Fire stopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Fire stopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide fire stopping materials free of solvents which will not experience shrinkage while curing.
- D. Fire stopping materials shall be unaffected by moisture.

2.5 ACCEPTABLE MANUFACTURERS

- A. Specified Technologies, Inc.
- B. Dow Corning
- C. Flamesafe
- D. International Protective Coatings
- E. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- 3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- 3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- 3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.
- C. Verify manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.
- D. Verify the condition of the substrates before starting work.
- E. Verify Weather Conditions. Do not proceed with installation of firestop materials when temperatures fall outside the manufacturer's suggested limits.
- F. Verify that fire stopping materials are installed so as not to contaminate adjacent surfaces.
- G. Schedule fire stopping after installation of penetrants but prior to concealing the openings.
- H. Where fire stopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.
- I. Verify that all pipe, conduit, ducting which penetrate fire-rated construction have been permanently installed prior to installation of firestop.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the fire stopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's details installation procedures.
 - B. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
 - C. Unless specified and approved, all insulation used in conjunction with through-penetrations shall remain intact and undamaged and may not be removed.
 - D. Seal holes and penetrations to ensure an effective smoke seal.
 - E. In areas of high traffic, protect fire stopping materials from damage. If the opening is large, install fire stopping materials capable of supporting the weight of a human.
 - F. Insulation types specified in other sections shall not be installed in lieu of fire stopping material specified herein.
 - G. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.
 - H. Dam Construction
 - 1. When required to properly contain fire stopping materials within openings, damming or packing materials may be utilized. Combustible damming material must be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.
- 3.8 Fire stopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring fire stopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of fire stopping.
- 3.9 Schedule installation of fire stopping after completion of penetrating item installation but prior to covering or concealing of openings.
- 3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.
- 3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the Commissioner prior to penetrating any load bearing assembly.
- 3.12 Firestop systems are not intended to support live loads or traffic. Contractor shall consult the Commissioner if he has reason to believe these limitations may be violated.
- 3.13 The installation of firestop materials shall be inspected on site by a representative of the firestopping manufacturer and verified in writing that the installation is in accordance with the

manufacturer's requirements. This shall be done for each firestop penetration installed on this project.

3.14 FIRESTOPPING

A. Un-Insulated Cold Pipes

1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the specified pipe and fire stopping.
2. Install firestop material at each end of sleeve to form a U.L. approved system.
3. Mark penetration in an approved manner to verify manufacturer's inspection.
4. Cover fire stopping with escutcheon cover.

B. Insulated Cold Pipes

1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the specified thickness of insulation.
2. Pipe insulation should be continuous through sleeve. Insulation should be covered with a vapor barrier. For depth of wall plus 1" on either side of wall or slab, vapor barrier shall be wrapped with a 26 gauge sheetmetal inner sleeve. Firestop shall be applied between wall sleeve and pipe protection sleeve.
3. Install firestop material at each end of sleeve to form a U.L. approved system.
4. Mark penetration in an approved manner to verify manufacturer's inspection.
5. Cover fire stopping with escutcheon cover.

3.15 FIELD QUALITY CONTROL

- A. Prepare and install firestopping systems in accordance with manufacturer's printed instruction and recommendations.
- B. Follow safety procedures recommended in the Material Safety Data Sheets.
- C. Finish surfaces of fire stopping which are to remain exposed in the completed work to a uniform and level condition.
- D. All areas of work must be accessible until inspection by the applicable Code Authorities.
- E. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification.

3.16 CLEANING

- A. Remove spilled and excess materials adjacent to fire stopping without damaging adjacent surface.
- B. Leave finished work in neat, clean condition with no evidence of spill overs or damage to adjacent surfaces.

END OF SECTION 22 05 17

SECTION 22 05 18 – ESCUTCHEONS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Escutcheons

1.3 SUBMITTALS

- A. Provide the following Manufacturer's Specifications and Engineering Data:

1. Materials
2. Parts
3. Devices
4. Finish
5. Performance Data
6. Area of Use

- B. Provide samples as follows: Where manufacturer's catalog information does not satisfactorily indicate materials, engineering design, quality of construction or aesthetics of proposed equipment, samples shall be submitted as requested with no additional cost to the City of New York.

1.4 QUALITY ASSURANCE

- A. Local Codes.
- B. Plumbing and Drainage Institute (PDI).
- C. ANSI.
- D. National Sanitary Foundation (NSF).
- E. ASTM.
- F. Underwriters Laboratories (UL).

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 ESCUTCHEONS

- A. Provide escutcheons on all exposed piping through walls, floors, partitions and ceilings.
- B. Provide escutcheons on all piping passing through fire rated walls.

C. Escutcheons shall be held in place by set screws.

D. Escutcheon Application

Location	
Finished Spaces	Chrome plated brass
Unfinished spaces: including mechanical equipment rooms.	Cast iron

E. Two-piece or hinged escutcheons will not be permitted.

F. Escutcheons shall be installed on both sides of pipe penetrations.

PART 3 - EXECUTION

NOT USED.

END OF SECTION 22 05 18

SECTION 22 05 29 – HANGERS, SUPPORTS, ANCHORS, GUIDES, AND SEISMIC RESTRAINT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of this Section shall conform to the requirements of the Contract Documents.

1.2 WORK INCLUDED

- A. Hangers equipment.
B. Supports

1.3 SUBMITTALS

- A. Manufacturer's literature, catalog data and illustrations.
B. Shop Drawings indicating:
1. Dimensions
2. Construction details of hangers, inserts, anchors and guides
3. Materials
4. Maximum Load
5. Locations
6. Recommended installation procedures
7. Installation Detail Drawing References.

1.4 QUALITY ASSURANCE

- A. Codes and Authorities
1. Federal Specification WW-H171b
2. ASA Code for Pressure Piping
3. ASTM A-575-73
4. MSS SP-58-67
5. MSS SP-69-66
6. Underwriters Laboratories
7. Local Plumbing Code

PART 2 - PRODUCTS

2.1 HANGERS

- A. All bracket, clamp and rod sizes indicated in this specification are minimum sizes only. All structural hanging materials shall have a built-in safety factor of 5.
B. Provide pipe roller support where longitudinal movement due to expansion and contraction may occur.

C. Pipe Hanger Schedule

	Carpenter & Patterson 'Witch'	Grinnell	I. R. Rauch's & Sons
C-Clamp with Retaining Clip and Locknut (pipe sizes 2" & smaller)	47 with 22	86 with 89	47 with 22
Beam Clamp	293	228	82
Multi-J Hook	---	---	228
J Hook	---	---	221
Clevis Hanger	100	260	100
Clevis Hanger w/Saddle	100SH	---	100SH
180° Shield	265P	168	265P
Single Rod Roll Hanger	140	181	140
Double Rod Roll Hanger	142	171	142
Trapeze	---	46	1600-1700
U-bolt Adjustable Pipe	283	137C	283
Stanchion Saddle	247	259	247
Welded Steel Bracket	84 or 139	199 or 195	84 or 139
Riser clamp	126	261	126
Welded Beam Attachment	113A	66	---
Welded Beam Attachment w/bolt & nut	113B	66	113A
Concrete Insert	108	282	180 or 181
Phillips Inserts	513	Phillips Insert	1000

D. Hanger Rod Schedule

Pipe Size	Rod Diameter
2" and smaller	3/8"
2-1/2" - 3-1/2"	1/2"
4" - 5"	5/8"
6"	3/4"
8" - 12"	7/8"

E. Acceptable Manufacturers

1. I. R. Rauch's & Sons
2. Grinnell Company, Inc.
3. Carpenter & Patterson

4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. See schedule below.

Hanger Spacing Schedule			
Piping Material	Pipe Size	Maximum Hanger Spacing	Remarks
Cast iron (hubless)	All sizes	5 feet	Provide hanger at each side of every joint.
Copper	1¼" and less	6 feet	
Copper	1½" and larger	10 feet	
Steel	All	10 feet	Provide hanger at each mechanical joint.
Note: Restraint assemblies consisting of pipe clamps, rods and nuts shall be fitted to each hubless vertical to horizontal fitting. Sway bracing must be provided for above ground piping 6" or larger.			

- B. For flat slab construction only, support hangers from concrete inserts. Furnish, locate and set such inserts and make sure that such inserts are in place when the concrete is poured. Construct inserts of malleable iron or pressed steel with space for rods of all sizes. Install all inserts for pipes 3" and larger in size with a reinforcing rod ½" in diameter run through a slot in the insert specifically provided for this purpose.
- C. For flat slab construction only, if any pipe is to be hung in a space where no inserts have been provided, drill holes in the slab (subject to the Commissioner's prior approval) and provide rods and hanger attached to an approved fishplate or install double expansion shields connected by a 2" x 2" angle from which the hanger rod is to be suspended. For pipe size 2" and under, use single shields but the hanger spacing defined hereinbefore to be reduced to 5 feet. The carrying capacity and size of each shield to be calculated on the basis of the spacing indicated above but the minimum size to be 1/2". Install additional shields of the same size so that the number of hangers are of adequate size to support the loads which they carry. Shields may be used in flat concrete slabs only.
- D. Regardless of the type of construction (i.e., concrete, concrete-deck-steel or other variations) take particular care to support all main lines and all large and heavy pipes in an approved manner, including the furnishing and installation of supplementary steel, if required. Supplementary steel sections are to be mill-rolled. Submit shop drawings, indicating support methods, point loadings to the building structure and hanger locations for review sufficiently in advance of concrete pouring schedules to permit evaluation, critique and any necessary changes to handling and support methods.
- E. Set all inserts for all pipes in ample time to allow concrete work to be performed on scheduled time.
- F. Hangers may be directly attached to steel beams of building construction, where they occur, if approved by Commissioner. Smaller pipes may be suspended from crosspieces of pipe or steel angles, which in turn are to be securely fastened to building beams. The intention is to provide supports which, in each case, will be amply strong and rigid for the load, but which will not weaken or unduly stress the building construction.

- G. Provide approved roller support, floor stands, wall brackets, etc., for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or walls. Pipelines near walls may also be hung by hangers carried from approved wall brackets at a level higher than the pipe.
- H. Do not hang piping from other piping. Support of hangers by means of vertical expansion bolts is not permitted.
- I. Support Locations for Vertical Piping
 - 1. Cast Iron Soil Piping: At every floor and at its base, but in no case greater than 20-foot intervals.
 - 2. Copper Tubing and Steel Pipe: At every floor but no more than 20-foot intervals.
- J. Hangers shall be installed outside of piping insulation with a semi-cylindrical galvanized shield set between the hanger and insulation.
- K. Trapeze hangers may be used instead of separate clevis hangers with suspension rods having double nuts and securely attached to the construction.
- L. All beam attachments shall be installed on clean, smooth, and non-fireproofed sections of the beam.
- M. All hangers, anchors, rods and supports shall be galvanized or painted.

END OF SECTION 22 05 29

SECTION 22 05 53 – IDENTIFICATION OF PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide information of plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipe Labeling

1.3 SUBMITTALS

- A. Provide the following Manufacturer's Specifications and Engineering Data:

1. Materials
2. Parts
3. Devices
4. Finish
5. Area of Use

- B. Provide samples as follows: Where manufacturer's catalog information does not satisfactorily indicate materials, engineering design, quality of construction or aesthetics of proposed equipment, samples shall be submitted as requested with no additional cost to the City of New York.

1.4 QUALITY ASSURANCE

- A. Local Codes.
- B. Plumbing and Drainage Institute (PDI).
- C. ANSI.
- D. National Sanitary Foundation (NSF).
- E. ASTM.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 PIPE LABELING

- A. All piping shall be identified by stenciled lettering, or self adhesive pipe markers which legend conforms to OSHA/ANSI standards including but not limited to the identification of flow direction, pressure, supply/return, pump discharge, cold water, hot water, hot water return, etc.
- B. There shall be at least one lettering identification for each pipe in each space and at all valve locations.

- C. For painted identification use color sharply contrasting with background. If necessary, paint a strip background of black or white to obtain contrast.
- D. Vertical piping shall be labeled at each floor. Horizontal piping shall be labeled every 10', both sides of partitions, before and after turns, and close to valves and flanges.
- E. Each set consisting of one (1) band on which the name of the service is printed in black letters not less than 1½ inches high, and one (1) band on which is printed a black directional arrow. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- F. Adhesive Bands: "Quick-Label B-350 Perma-Code Film Markers" (W.H. Brady Company). Or use an approved equal product from the manufacturers listed in in section 2.4, or an approved product by an approved manufacturer.

2.3 VALVE & EQUIPMENT TAGGING

- A. Tag valves with identifying number and system. Number valves by floor level.
- B. For valves, etc., use metal tags 2" minimum in diameter with 1" painted letters fabricated of brass, stainless steel or aluminum. Attach tags with chain of same material.
- C. Prepare lists of all tagged valves showing location, floor level, tag number and use. Prepare separate lists for each system. Mount lists under a sheet of clear acrylic in Equipment Room. Include copies in each maintenance manual.
- D. Provide charts showing equipment lubrication points, lubrication required and frequency, and columns for date and initials.
- E. Stencil equipment with identifying letters and numbers as used on drawings. Where space is available use full name of equipment.
- F. Identify all controls such as motor starters not in motor control centers, float switches and alarms.

2.4 Acceptable Manufacturers

- A. Brimar Industries
- B. Grace Labels
- C. EZ Pipe Markers
- D. Or Approved Equal

PART 3 - EXECUTION

NOT USED

END OF SECTION 22 05 53

SECTION 22 05 90 – TESTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide testing for all plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Test all new systems.

1.3 SUBMITTALS

- A. Provide all test certifications.
- B. Approvals.

1.4 QUALITY ASSURANCE

- A. AWWA
- B. New York City Building Code
- C. New York City Plumbing Code

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 SOIL, WASTE, VENT AND STORM WATER SYSTEMS

- A. Except for outside leaders and perforated or open jointed drain tile (subsoil drains), the piping of sanitary and storm drainage and vent systems shall be verified as to materials and shall be tested upon completion of the rough piping installation and prove to be water tight. The removal of cleanout plugs may be required to ascertain that the prescribed pressure has been reached in all parts of the system. Testing of sections shall be done in order to permit general construction and other work to proceed. Such tests shall be made in the presence of the Building Department Inspectors, Commissioner and any other authorities having jurisdiction.
- B. Water Test. A water test shall be applied to the drainage system either in its entirety or in sections after rough piping has been installed. If applied to the entire system, all openings in the piping, except the highest opening, shall be tightly closed and the system filled with water to the point of overflow. If the system is tested in sections, each opening, except the highest opening of the section under test, shall be tightly plugged and each section filled with water. No section shall be tested with less than a ten foot head of water. In testing successive sections, at least the upper ten feet of the following section shall be tested, so that no joint or pipe in the building (except the uppermost ten feet of the system) shall have been submitted to a test of less than ten foot head of water. The water shall be kept in the system or in the portion under test for at least four (4) hours before inspection starts; the system shall then be tight at all points.

END OF SECTION 22 05 90

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
TESTING - 22 05 90 - 2

SECTION 22 07 19 – INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide insulation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Equipment Insulation.
- B. Piping Insulation.

1.3 SUBMITTALS

- A. Shop Drawings: Submit insulation shop drawings for each service.
- B. Product Data: Manufacturer's latest published data for materials, equipment and installation.

1.4 QUALITY ASSURANCE

- A. ASTM C335.
- B. ASTM C356.
- C. ASTM C411.
- D. ASTM C547.
- E. ASTM 84.
- F. ASTM 225.
- G. U.L.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Conform to application schedule specified herein for types and thicknesses of insulation.
- B. Provide insulation (including insulation jacket or facing and adhesives used to adhere the facing or jacket to the insulation) with noncombustible material meeting all Code requirements and fire and smoke hazard ratings as tested by procedure ASTM E-84, National Fire Protection Association 225, and UL 723, not exceeding flame spread 25 and smoke developed 50.

2.2 PIPE INSULATION

- A. Materials
 - 1. Fiberglass Density: All Fiberglass pipe insulation in equipment rooms and/or where exposed, to be of the sectional type having 6 lbs./cu. ft. density. All other fiberglass insulation to be of the 1-piece type having 4 lb. density.

2. Thermal conductivity of fiberglass to be .23 BTU/hr/inch/sq. ft./°F at a mean temperature of 75°F.
3. Thermal conductivity of calcium silicate to be .32 BTU/hr/inch/sq. ft./°F at a mean temperature of 100°F.

B. Insulation Jackets

1. Hot Pipes Concealed: Factory applied white fire retardant jacket, (ASJ), taped and banded. Pipes banded with not less than 3 bands per section.
2. Hot Pipes Exposed: Factory applied white fire retardant jacket, (ASJ), with butt strips taped and banded. Pipes banded with not less than 3 bands per section.
3. Cold Pipes Concealed and Exposed: Factory applied white fire retardant jacket with self-sealing lap (ASJ) and butt strip. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 or FB 30-35).
4. Finish calcium silicate with glass cloth adhered with I.C. 501 or BF 30-36.
5. Vapor jacket permeability to be 0.02 perms.
6. Jacket Puncture Resistance to be 50 units (Beach).
7. Piping Exposed to Outdoors: Cover piping and fittings which is exposed to weather or called for to be weatherproof, in addition to insulation and finishes specified for piping exposed to outdoors, with a polished aluminum jacket similar to Johns-Manville "Metal-Lok" or approved equal.

C. Application Schedules

1. Schedule

Service	Material	Insulation Thickness in Inches for Pipe Sizes				
		1" and less	1¼" to 2"	2½" to 4"	5" to 6"	8" and larger
Horizontal Storm Drains and Drain Bodies	Glass Fiber	---	1"	1"	1"	1"

2. Piping Exposed to Outdoors and Pipes Subject to Freezing: Cover any piping subject to freezing with an additional layer of 2" glass fiber insulation of the same finish as specified for the particular service when not subject to freezing, but not less than 3" total thickness.
3. For heat-traced piping, insulation must be sized to accommodate electric cable. Cover with an aluminum jacket, as specified for piping exposed to the weather.

D. Fittings, Valves and Flanges

1. Where manufactured, use factory premolded fittings (of the same material and thickness as the pipe insulation) for all fittings, flanges and valves.
2. Where premolded insulation fittings are not manufactured, insulate all fittings, flanges and valves with mitered segments of the same density as the adjoining pipe covering. Finish hot service applications with open weave glass mesh adhered with I.C. 501 (or BF 30-35). Vaporseal for cold applications with I.C. 501 (or BF 30-35) adhesive with open weave glass mesh laid in while wet with final coat with I.C. 501 (or BF 30-35) adhesive. Overlap glass mesh and outer coat adjacent covering by at least 2". Do not insulate flanges until systems are operational. Or use an approved equal product from the manufacturers listed in Article 2.3, or an approved product by an approved manufacturer.
3. Provide insulation for removable flanges of pipe strainers on cold services with built-up sections of glass fiber pipe covering, arranged to facilitate servicing of the strainer. Complete applications with vaporseals. All vapor barriers to be sealed and continuous through hangers, walls, sleeves, etc. All adhesives and coatings to be as noted herein.

4. Insulate fittings, flanges, valves, etc. for services where calcium silicate insulation is specified as a pipe insulation with mineral wool cement of equal thickness to the pipe insulation and finished with glass cloth.
5. PVC molding pipe fitting covers as manufactured by Zeston are acceptable. Or use an approved equal product from the manufacturers listed in Article 2.3, or an approved product by an approved manufacturer.
6. Insulate water supply lines inside chases and up to the plumbing fixture supply stop.

2.3 ACCEPTABLE MANUFACTURERS

A. Insulation

1. Owings Corning Fiberglas
2. Johns Manville
3. Certain-Teed
4. Pittsburgh Corning
5. Or Approved Equal

B. Adhesives and Sealers

1. Benjamin Foster (B-F)
2. Insul-Coustic (I-C)
3. Minnesota Mining and Mfg. Co. (3M)
4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION

- A. Perform all work in strict accordance with the manufacturer's recommendation and the best practice of the trade and the intent of this specification.
- B. Apply all insulation over clean dry surface, butting all sections or surfaces firmly together and finishing as hereinafter specified.
- C. Seal all vapor barriers continuous and throughout against moisture penetration.

3.2 PROTECTION OF INSULATION

- A. Protect pipe insulation at hangers, guides, and rollers by 16 gauge galvanized metal shields (at least 3 times the insulation diameter in length and 1/3 the insulation circumference in width) on the outside of the insulation and vapor barrier. Hold shields in place by straps. Do not pierce the insulation with hangers. Where glass fiber insulation is used on piping 3" and larger, provide half-section of calcium silicate covering of equal thickness at metal shields.
- B. Do not use staples.

END OF SECTION 22 07 19

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SECTION 22 11 16 – DOMESTIC WATER PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping.
- B. Fittings.
- C. Related Accessories.
- D. Testing.
- E. Disinfection

1.3 SUBMITTALS

- A. Submit a list of all proposed piping materials including system/material (use schedule).
- B. Submit complete back-up material where proposed materials differ from those specified.
- C. Quality control submittals.
 - 1. Welder's Certification.
- D. All final test results.

1.4 QUALITY ASSURANCE

- A. Local Plumbing Code.
- B. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- C. Each fitting shall have the manufacturer's name cast, stamped or rolled on.
- D. The following are references to the specifications standards of recognized authorities to which pipe and fitting materials must conform to be acceptable. All references shall be the latest edition in force at the time of bidding.

Material	Authority Spec. Numbers
Sleeve Pipe, Black and Galvanized	ANSI B36.20
Steel Pipe, Black and Galvanized	ANSI B36.20
Ductile Iron	ANSI A21.51
Ductile Iron Fittings	ANSI A21.10, A21.11
Cast Iron Pressure Pipe	FS-WW-P360A

Material	Authority Spec. Numbers
Malleable Iron Threaded Fittings - (Class 150 lbs. & 300 lbs.)	ANSI B16.3
Cast Iron Threaded Fittings (Class 125 lbs. & 250 lbs.)	ANSI B16.4
Cast Iron Pipe Flanges and Flanged Fittings (Class 25 lbs., 125 lbs., 250 lbs., & 800 lbs.)	ANSI B16.1
Seamless Copper Water Tube (Type "K" and "L") (Hard Temper)	ANSI H23.1
Brazing Filler Metal	ASTM B260-62T
Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	ANSI H16.22
Brass Compression Fittings	ANSI A40.2
Bronze Pipe Flanges and Flanged Fittings (Class 150 lbs. & 300 lbs.)	ANSI B16.24
Cast Bronze Threaded Fittings - (Class 125 lbs. & 250 lbs.)	ANSI B16.15
Cast Copper Alloy Solder Joint Pressure Fittings	ANSI B16.18
Seamless Red Brass Pipe, Standard Sizes	ANSI H27.1

PART 2 - PRODUCTS

2.1 COPPER TUBING

- A. Pipe: Copper tubing type 'L', seamless drawn extruded tubing hard temper. Pipe ends shall be plain, threaded or rolled groove as required for piping system.
- B. Fittings
 - 1. Brazed, Soldered or Threaded: Wrought or cast brass.
 - 2. Mechanical Joint: Victaulic rolled groove fittings with gasket.
- C. Joints:
 - 1. Brazed Joints: Use brazing flux and brazing alloy.
 - 2. Soldered Joints: Use 95-5 tin antimony solder (lead free).
 - 3. Threaded Joints: Conform to American National Taper Thread. All burrs shall be removed. Teflon tape shall be used only on male threads.
 - 4. Mechanical Joints: Grooved piping system for 2" through 6" sizes, with a pressure responsive synthetic rubber gasket, up to 300 psi working pressure, Victaulic Style 606, 610, 611, 620, 641.
- D. Application: All hot, cold and hot water circulating piping less than 5" within building.
- E. Acceptable Manufacturers
 - 1. Muller Industries
 - 2. Wheatland Tube
 - 3. Wieland

4. Or Approved Equal

PART 3 - EXECUTION

3.1 JOINTS

- A. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply Teflon tape to male threads only. Clean joint thoroughly of excess jointing material.
- B. Soldered Joints: Make all joints with wire solder. Remove burrs and ream smooth. Clean outside end of pipe and the inside cup of the fitting with sand cloth. Apply flux evenly and allow joint to cool. Clean joint of excess flux leaving a fillet around the cup of the fitting.
- C. Brazed Joints: Prepare surfaces the same as for soldering. Apply Harmon's "Handy Flux" evenly to tube end and fitting socket when wrought copper fittings (BCu Series) are used. Heat joint uniformly to temperature required (at least 1,000°F) and apply brazing alloy. Clean joint of excess brazing flux with wet brush or swab. Use lead-free brazing material only. Or use an approved equal product from the manufacturers listed in Article 2.1-E.
- D. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- E. Compression Joints: Lubricate neoprene gasket and slip into hub end of pipe. Draw spigot end of pipe into the gasketed hub. Provide restrained joints at all changes in pipe sizes, at all changes in direction of run and at all dead ends.
- F. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- G. Welded Joints
 - 1. All welded joints shall be butt welded in accordance with API 1104.1977 or ASME Section IX Boiler and Pressure Vessel Code 1980.
 - 2. Welders shall be qualified for all pipe sizes, wall thicknesses and all positions, in accordance with above standards, and requalified on an annual basis. Copies of the certified welder qualification reports shall be maintained by the responsible welding contractor and shall be made available upon request.
- H. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- I. Make joints between pipes of dissimilar metals with dielectric union or flanges.
- J. Exposed threads on exposed finished piping at plumbing fixtures and equipment will not be accepted.
- K. All mechanical joint fittings and couplings shall be made by the same manufacturer.

3.2 TESTING

- A. Upon completion of a section of a water system or of the entire water system, the completed section or system shall be verified as to materials, and shall be tested and proven tight under a water pressure of at least 1½ times the working pressure, but not less than 200 psig, for one (1) hour, with no loss in pressure. Testing of sections shall be done in order to permit general construction and other work to proceed. Such tests shall be made in the presence of the Building Department Inspectors, Commissioner and any other authorities having jurisdiction.

- B. Provide all apparatus and temporary work for tests. Take all precaution necessary to prevent damage to the building or its contents as a result of such tests. The water used for tests shall be obtained from a potable source of supply.
 - C. Any defects or deficiencies discovered as a result of tests shall be immediately repaired and tests shall be repeated until the test requirements are fully complied with.
 - D. Caulking of pipe joints to remedy leaks will not be permitted.
- 3.3 The pipe system shall be flushed with clean, potable water until no dirty water appears at the outlets.
 - 3.4 The system or part thereof shall be filled with a water-chlorine solution containing at least 50 parts per million of chlorine and the system or part thereof shall be valved off and allowed to stand for 24 hr. or the system or part thereof shall be filled with a water-chlorine solution containing at least 200 parts per million of chlorine and allow to stand for 3 hours.
 - 3.5 Test for residual chlorine at the extreme end of system from the point where chlorine was introduced. If less than 10 ppm, repeat chlorination procedure.
 - 3.6 Flush system with clean water until chlorine is reduced to less than 1 ppm. Open and close each valve and faucet at least four times during flushing procedure.
 - 3.7 Obtain the services of an independent laboratory to have samples taken and tested. The system must be free of bacteriological contamination. If the system is contaminated, rechlorinate until satisfactory. Submit test results to the Commissioner.

END OF SECTION 22 11 16

SECTION 22 13 16 – SANITARY WASTE AND VENT PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping.
- B. Fittings.
- C. Related Accessories.

1.3 SUBMITTALS

- A. Submit a list of all proposed piping materials including system/material (use schedule).
- B. Submit complete back-up material where proposed materials differ from those specified.

1.4 QUALITY ASSURANCE

- A. New York City Plumbing Code.
- B. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- C. Each fitting shall have the manufacturer's name cast, stamped or rolled on.
- D. The following are references to the specifications standards of recognized authorities to which pipe and fitting materials must conform to be acceptable. All references shall be the latest edition in force at the time of bidding.

Material	Authority Spec. Numbers
Sleeve Pipe, Black and Galvanized	ANSI B36.20
Steel Pipe, Black and Galvanized	ANSI B36.20
Extra Heavy and Service Weight Cast Iron Soil Pipe and Fittings	CS188-66
Caulking Lead, Type I	FS-QQ-L156(1)
Neoprene or Rubber Gasket, Compression	CISPI HSN-75
Hubless Cast Iron Soil Pipe and Fittings	CISPI 301
Ductile Iron	ANSI A21.51
Ductile Iron Fittings	ANSI A21.10, A21.11
Cast Iron Threaded Drainage Fittings	ANSI B16.12

PART 2 - PRODUCTS

2.1 CAST IRON SOIL PIPE (HUBLESS)

- A. Pipe: Hubless cast iron soil pipe coated inside and out.
- B. Fittings: Hubless service weight, cast iron.
- C. Joints: Neoprene gasket and heavy duty type 304 stainless steel shield and four stainless steel bands for sizes 1½" through 4", six bands minimum for sizes 5" and larger. Clamps as manufactured by Clamp-All Corporation or Husky as manufactured by Anaheim Foundry Co. (ANACO).
- D. Application:
 - 1. All sanitary and vent piping.

PART 3 - EXECUTION

3.1 JOINTS

- A. Caulked Joints: Firmly pack joints with an oakum gasket and seal with molten virgin pig lead. Use twelve ounces of molten lead for each inch in diameter of pipe used at each joint. Run lead in one pouring and caulk tight. Seal and smoothly face the joints.
- B. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply Teflon tape to male threads only. Clean joint thoroughly of excess jointing material.
- C. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- D. Compression Joints: Lubricate neoprene gasket and slip into hub end of pipe. Draw spigot end of pipe into the gasketed hub. Provide restrained joints at all changes in pipe sizes, at all changes in direction of run and at all dead ends.
- E. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- F. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- G. Make joints between pipes of dissimilar metals with dielectric union or flanges.
- H. Exposed threads on exposed finished piping at plumbing fixtures and equipment will not be accepted.
- I. Graphite shall be used on all cleanout plugs or caps.
- J. All mechanical joint fittings and couplings shall be made by the same manufacturer.

3.2 BRACING

- A. Hubless cast iron pipe shall have bracing installed as required by CISPI and the manufacturer.

3.3 INSTALLATION

- A. All materials shall be new and installed in a first class manner.
- B. All drainage piping, unless otherwise indicated, shall be pitched at a minimum rate of 1/8 inch per foot in direction of flow. Branch connections to stacks or main drains shall not be made in a manner which will permit backflow.
- C. All vent piping shall be arranged to drain any condensate back to waste piping.
- D. Nipples: Any piece of pipe 8 inch in length and less shall be considered a nipple. All nipples shall be of weight corresponding to fitting connected. Only shoulder nipples shall be used unless otherwise directed.
- E. Where indicated on the drawings, plugged outlets shall be left in drainage and vent piping for future fixtures.

END OF SECTION 22 13 16

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SECTION 22 13 19 – SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete sanitary and storm drainage systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Traps.
- B. Cleanouts.

1.3 SUBMITTALS

- A. Manufacturers Data Sheet.

1.4 QUALITY ASSURANCE

- A. Applicable Standards
 - 1. New York City Plumbing Code.
 - 2. Local authorities having jurisdiction.
 - 3. PDI.

PART 2 - PRODUCTS

2.1 TRAPS

- A. All traps for showers and drains shall be brass or cast iron (threaded or caulked joint pattern) of approved types and water seal. Traps provided with cleanouts shall have heavy brass threaded plugs with solid brass heads.
- B. Fixture traps shall be as specified under Plumbing Fixtures.
- C. All traps shall be set as close to the fixtures as possible and in no event shall this distance exceed 2 feet horizontal and 4 feet vertical. All traps shall be set level with regard to their water line.

2.2 CLEANOUTS

- A. Provide cleanouts at the base of all soil, waste and leader stacks.
- B. Cast Iron Pipe Cleanouts: Tapped extra heavy cast iron ferrule, caulked into cast iron fittings, and extra heavy lead seal plug with solid hexagonal nut or countersunk plug to suit.
- C. No-Hub Cast Iron Pipe Cleanouts: No-Hub cast iron cleanout plug or extra heavy brass threaded plug in tapped cast iron fittings, with solid hexagonal nut or countersunk plug to suit.
- D. Steel Pipe Cleanouts: Extra heavy brass threaded plug in drainage fitting.
- E. Cleanout Plugs: Comply with the Plumbing Code; American Standard pipe threads with "Permacel" or approved Teflon tape applied to the male threads.

- F. Extend cleanouts to walls and floor with long sweep ells or "y" and 1/8 bends with plugs and face or deck plates to conform to the architectural finish in the room. Where no definite finish is indicated on the architectural and/or mechanical drawings, use stainless steel wall plates and floor plates of nickel bronze.
- G. Cleanouts shall be not more than 50 feet apart in horizontal drainage lines. Accessible cleanouts shall be installed at each change of direction greater than 45° on all horizontal drainage lines. All cleanouts shall be installed so that the cleanout opens in the direction of flow or at right angles thereto. Cleanouts shall be of same size as pipes up to 4 inches and not less than 4 inches for larger piping.
- H. Cleanouts and Plates: J.R. Smith models as indicated in the following tabulation:

Type	Location	Piping
4405-98		Exposed C.I. pipe
4472		Exposed steel pipe
4402-97	Wall	Concealed C.I. pipe
4472	Wall	Concealed steel pipe
4025	Concrete Floor	Steel or C.I.
4160FC	Waterproof Slab Floor	Steel or C.I.
4145	Asphalt Tile Floor	Steel or C.I.
4045	Ceramic Tile Floor	Steel or C.I.
4105	Heavy Duty Traffic Floor	Steel or C.I.
4020	Concrete Floor	No-Hub
4020FC	Waterproof Slab Floor	No-Hub
4140	Asphalt Tile Floor	No-Hub
4040	Ceramic Tile Floor	No-Hub
4100	Heavy Duty Traffic Floor	No-Hub

2.3 ACCEPTABLE MANUFACTURERS

A. Cleanouts and Drains

1. Wade
2. Zurn
3. J.R. Smith
4. Ancon
5. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All materials shall be new and installed in a first class manner.

3.2 OPERATING INSTRUCTIONS PERIOD

- A. Provide one day of instructions.

END OF SECTION 22 13 19

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SECTION 22 14 13 – STORM DRAIN PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping.
- B. Fittings.
- C. Related Accessories.

1.3 SUBMITTALS

- A. Submit a list of all proposed piping materials including system/material (use schedule).
- B. Submit complete back-up material where proposed materials differ from those specified.

1.4 QUALITY ASSURANCE

- A. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- B. Each fitting shall have the manufacturer's name cast, stamped or rolled on.
- C. The following are references to the specifications standards of recognized authorities to which pipe and fitting materials must conform to be acceptable. All references shall be the latest edition in force at the time of bidding.

Material	Authority Spec. Numbers
Sleeve Pipe, Black and Galvanized	ANSI B36.20
Steel Pipe, Black and Galvanized	ANSI B36.20
Extra Heavy and Service Weight Cast Iron Soil Pipe and Fittings	CS188-66
Caulking Lead, Type I	FS-QQ-L156(1)
Neoprene or Rubber Gasket, Compression	CISPI HSN-75
Hubless Cast Iron Soil Pipe and Fittings	CISPI 301
Cast Iron Threaded Drainage Fittings	ANSI B16.12

PART 2 - PRODUCTS

2.1 CAST IRON SOIL PIPE (HUBLESS)

- A. Pipe: Hubless cast iron soil pipe coated inside and out.
- B. Fittings: Hubless service weight, cast iron.

- C. Joints: Neoprene gasket and heavy duty type 304 stainless steel shield and four stainless steel bands for sizes 1½" through 4", six bands minimum for sizes 5" and larger. Clamps as manufactured by Clamp-All Corporation or Husky as manufactured by Anaheim Foundry Co. (ANACO).
- D. Application:
 - 1. All storm piping to stack.

PART 3 - EXECUTION

3.1 JOINTS

- A. Caulked Joints: Firmly pack joints with an oakum gasket and seal with molten virgin pig lead. Use twelve ounces of molten lead for each inch in diameter of pipe used at each joint. Run lead in one pouring and caulk tight. Seal and smoothly face the joints.
- B. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply Teflon tape to male threads only. Clean joint thoroughly of excess jointing material.
- C. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- D. Compression Joints: Lubricate neoprene gasket and slip into hub end of pipe. Draw spigot end of pipe into the gasketed hub. Provide restrained joints at all changes in pipe sizes, at all changes in direction of run and at all dead ends.
- E. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- F. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- G. Make joints between pipes of dissimilar metals with dielectric union or flanges.
- H. Graphite shall be used on all cleanout plugs or caps.
- I. All mechanical joint fittings and couplings shall be made by the same manufacturer.

3.2 BRACING

- A. Hubless cast iron pipe shall have bracing installed as required by CISPI and the manufacturer.

3.3 INSTALLATION

- A. All materials shall be new and installed in a first class manner.
- B. All drainage piping, unless otherwise indicated, shall be pitched at a minimum rate of 1/8 inch per foot in direction of flow. Branch connections to stacks or main drains shall not be made in a manner which will permit backflow.
- C. Nipples: Any piece of pipe 8 inches in length and less shall be considered a nipple. All nipples shall be of weight corresponding to fitting connected. Only shoulder nipples shall be used unless otherwise directed.

3.4 OPERATING INSTRUCTIONS PERIOD

- A. Provide one day of instructions.

END OF SECTION 22 14 13

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SECTION 22 14 23 – STORM DRAINAGE SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete sanitary and storm drainage systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Traps.
- B. Cleanouts.
- C. Drains.

1.3 SUBMITTALS

- A. Manufacturer's Data Sheet.

1.4 QUALITY ASSURANCE

- A. Applicable Standards
 - 1. New York City Plumbing Code.
 - 2. Local authorities having jurisdiction.
 - 3. PDI.

PART 2 - PRODUCTS

2.1 TRAPS

- A. All traps for showers and drains shall be brass or cast iron (threaded or caulked joint pattern) of approved types and water seal. Traps provided with cleanouts shall have heavy brass threaded plugs with solid brass heads.
- B. Fixture traps shall be as specified under Plumbing Fixtures.
- C. All traps shall be set as close to the fixtures as possible and in no event shall this distance exceed 2 feet horizontal and 4 feet vertical. All traps shall be set level with regard to their water line.

2.2 CLEANOUTS

- A. Provide cleanouts at the base of all soil, waste and leader stacks.
- B. Cast Iron Pipe Cleanouts: Tapped extra heavy cast iron ferrule, caulked into cast iron fittings, and extra heavy lead seal plug with solid hexagonal nut or countersunk plug to suit.
- C. No-Hub Cast Iron Pipe Cleanouts: No-Hub cast iron cleanout plug or extra heavy brass threaded plug in tapped cast iron fittings, with solid hexagonal nut or countersunk plug to suit.
- D. Steel Pipe Cleanouts: Extra heavy brass threaded plug in drainage fitting.

- E. Cleanout Plugs: Comply with the Plumbing Code; American Standard pipe threads with "Permacel" or approved Teflon tape applied to the male threads.
- F. Extend cleanouts to walls and floor with long sweep ells or "y" and 1/8 bends with plugs and face or deck plates to conform to the architectural finish in the room. Where no definite finish is indicated on the architectural and/or mechanical drawings, use stainless steel wall plates and floor plates of nickel bronze.
- G. Cleanouts shall be not more than 50 feet apart in horizontal drainage lines. Accessible cleanouts shall be installed at each change of direction greater than 45° on all horizontal drainage lines. All cleanouts shall be installed so that the cleanout opens in the direction of flow or at right angles thereto. Cleanouts shall be of same size as pipes up to 4 inches and not less than 4 inches for larger piping.
- H. Cleanouts and Plates: J.R. Smith models as indicated in the following tabulation:

Type	Location	Piping
4405-98		Exposed C.I. pipe
4472		Exposed steel pipe
4402-97	Wall	Concealed C.I. pipe
4472	Wall	Concealed steel pipe
4025	Concrete Floor	Steel or C.I.
4160FC	Waterproof Slab Floor	Steel or C.I.
4145	Asphalt Tile Floor	Steel or C.I.
4045	Ceramic Tile Floor	Steel or C.I.
4105	Heavy Duty Traffic Floor	Steel or C.I.
4020	Concrete Floor	No-Hub
4020FC	Waterproof Slab Floor	No-Hub
4140	Asphalt Tile Floor	No-Hub
4040	Ceramic Tile Floor	No-Hub
4100	Heavy Duty Traffic Floor	No-Hub

2.3 DRAINS

- A. Locations of drains shown on the drawings shall be verified by this trade.
- B. All drains shall include adjustable clamping collars device where membrane or other waterproof floors or decks occur.
- C. All drains shall include extension collars as required to suit roof, floor or deck construction.
- D. Furnish caulk support strap, J.R. Smith Fig. No. 9329 for all drains requiring same.
- E. For trench drain specification refer to architectural plans.

2.4 ACCEPTABLE MANUFACTURERS

A. Cleanouts and Drains

1. Wade
2. Zurn
3. J.R. Smith
4. Ancon
5. Or Approved Equal

PART 3 - EXECUTION

3.1 OPERATING INSTRUCTIONS PERIOD

- A. Provide one day of instructions.

END OF SECTION 22 14 23

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SECTION 23 00 02 – HEATING, VENTILATION AND AIR CONDITIONING SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the heating, ventilating and air conditioning systems as called for in the contract documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.
- C. The Contractor shall accept delivery of the pre-purchased equipment at the site, inspect the equipment on delivery for damage, and install the equipment. The Contractor shall be responsible for the equipment; provide all labor, material, and accessories as required for a complete functioning system. The Contractor shall have complete responsibility as if he provided the equipment including warranties.

1.3 SUBMITTALS

- A. List of submittals.
- B. Life of materials and equipment manufacturers.
- C. Alternate equipment and material proposal.
- D. Detailed project schedule.
- E. Operating and maintenance manuals.
- F. Record "As-Built" drawings.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of EPA, U.L. and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer.

- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Engineer.
- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project shall not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Engineer and relocate work incorrectly installed as determined by the Engineer.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Provide M.E.A./BS&A numbers for all submitted equipment.
- G. Install materials and equipment with qualified trades people.
- H. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- I. Applicable equipment and materials shall be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards, and as approved by local authorities having jurisdiction.
- J. Fully lubricate equipment when installed.
- K. Do not operate air or vacuum systems until ductwork is complete, temporary filters are in place and construction debris is removed. Provide one-inch thick fiberglass filter media across the face of each intake air opening prior to start of each air system during temporary system operation and system clean-out.
- L. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- M. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- N. Locate valves, traps, damper operators, access doors, etc. to be easily accessible, either in mechanical spaces or through access panels as specified hereinafter, or as required. Coordinate and obtain Commissioner's and Engineer's approval of access panel locations.

- O. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Engineer before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- P. Pressure vessels and relief valves shall be selected, built and labeled in accordance with ASME. Obtain a certificate from the City Inspector having jurisdiction showing such acceptance, and mount this certificate in a black frame under glass or laminated plastic adjacent to each pressure vessel and relief valve.
- Q. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.
- R. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.
- S. Where a sizing conflict occurs in the documents, such as different pipe or duct sizes shown for the same run, use the larger of the sizes until verification can be determined.

2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Within two (2) months after notice to proceed by the City of New York or Commissioner, submit to the Engineer for review, a complete typed list of all mechanical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Within four (4) months after notice to proceed by the City of New York or Commissioner, and prior to any submission, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Include the anticipated date of each submission. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Engineer. Prior to submission of the shop drawings, product data and samples to the Engineer, review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.
- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.
- E. All shop drawings shall be prepared using AutoCAD drawing format.

PART 3 - EXECUTION

3.1 DRAWINGS & PRODUCT DATA

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Engineer's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include New York City M.E.A./BS&A numbers on all equipment cuts.
- D. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- E. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- F. Prepare and submit detailed shop drawings for ductwork, piping work and other distribution services in 3/8" = 1'-0" scale, including locations and sizes of openings in floor decks, walls and roofs.
- G. All shop drawings shall be prepared using AutoCAD drawing format.
- H. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Engineer, or for deviations from requirements in the Contract Documents. Understand clearly that the Engineer's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- I. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Engineer and will be returned to the Contractor for resubmittal.
- J. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Commissioner, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

3.2 CONTRACTOR'S COORDINATION DRAWINGS

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.
- B. Coordinate all new work with existing structure and with existing work which is to remain. Note all existing conditions which may interfere with new work as shown on the documents of this

trade and of all other trades which are part of this project. In form the Commissioner and Engineers of all such conditions in writing with sufficient time to address the conflicts so as not to affect project schedule.

- C. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as piping, busway, conduit, ductwork, etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have signed-off by the other subcontractors and the General Contractor prior to the installation of the work in the area covered by the specific drawing. Maintain a set of these drawings on site for inspection by the Commissioner. These drawings shall not be required to be reviewed by Engineer.
- D. Indicate piping loads and support points for all piping 4" and larger, racked piping, racked conduit, and busway, and submit to the Structural Engineer for review and approval. Indicate the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all lines. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.
- E. This requirement for Coordination Drawings is not authorization for the Contractor or Subcontractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, eight (8) inch high zone above the ceiling (measured from finished ceiling) for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- F. Work installed which interferes with work of any other trade will be corrected at no cost to the project.

3.3 COORDINATION OF WORK

- A. The mechanical drawings show the general arrangement of equipment, ductwork, piping and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- C. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto with sufficient access space, including finished suspended ceilings.
- D. Wherever work interconnects with work of other trades, coordinate with other trades. Insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (valves, dampers, coils, cleanouts, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- E. Consult with other trades regarding equipment so that, wherever possible, motors, motor controls, pumps and valves are of the same manufacture.
- F. Furnish and set sleeves for passage of pipes, ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each pipe and duct passing through building surfaces.

- G. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc. which pass through rated walls, partitions and floors.
- H. Provide detailed information on openings and holes required in precast members for mechanical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- I. Provide single or multiple vent lines for all gas boiler trains. Vent lines to be schedule 40 steel pipes and routed to the outside. Vent lines to be 1" minimum or larger, if required, per the gas train. Contractor to include routing of vent lines on pipe shop drawing for review and approval.
- J. Provide required supports and hangers for ductwork, piping and equipment, designed so as not to exceed allowable loadings of structures.
- K. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Engineer and obtain from him written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- L. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Engineer for review. At completion include a set of such drawings with each set of as-built drawings.
- M. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- N. Adjust location of pipes, ducts, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
 - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
 - 2. Make offsets, transitions and changes in direction in pipes and ducts as required to maintain proper head room and pitch on sloping lines. Furnish and install traps, air vents, drains, etc., as required to effect these offsets, transitions and changes in direction.
- O. Install mechanical work to permit removal (without damage to other parts) of coils, heat exchanger plates and tube bundles, fan shafts and wheels, filters, belt guards, sheaves and drives, and other parts requiring periodic replacement or maintenance. Arrange pipes, ducts and equipment to permit access to valves, cocks, traps, starters, motors, and control components, and to clear the openings of swinging doors and access panels.
- P. Changes in the cross-sectional dimensions of ductwork are permissible when required to meet job conditions. Maintain at least the same equivalent cross-sectional duct area in accordance with the latest edition of the ASHRAE Guide. Secure the approval of the Commissioner prior to fabrication of ductwork requiring such changes.
- Q. Provide access panels in equipment, ducts, etc., as required for inspection and maintenance of internal equipment, dampers, plenums, etc.

- R. Ensure proper access to all damper actuators including but not limited to FSD, SD and ALD.
- S. In cases of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instructions from the Commissioner and/or Engineer.
- T. Immediately upon the award of this Contract, but prior to commencing any work, confer together with designated major subcontractors, with the Architect and Engineer concerning the work under this Contract.
- U. Where a sizing conflict occurs in the documents, such as different pipe or duct sizes shown for the same run, use the larger of the sizes until verification can be determined.

3.4 CUTTING AND PATCHING

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of ductwork, piping or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Architect is first obtained. If permission is granted, perform this work in a manner approved by the Architect.
- C. Where ductwork, piping or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

3.5 RESPONSIBILITY FOR EVALUATION

- A. The Engineer makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

3.6 FIRE ACCESS TO FIRE APPARATUS

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

3.7 EQUIPMENT PAD AND ANCHOR BOLTS

- A. Concrete pads for various pieces of equipment will be furnished by the General Contractor under another Division. Pads will be provided in all mechanical equipment rooms. This shall include floor mounted equipment, equipment mounted on legs and pipe support stands. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire

mesh. Trowel tops and sides of pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS" for dimensional guidance in sizing pads.

- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

3.8 DELIVERY AND HAULING

- A. Include all costs for hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.
- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the City of New York.

3.9 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the City of New York, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.
- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

3.10 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.

- C. Provide drip pans under all piping installed in any electrical equipment room. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill into floor drain or service sink.

3.11 EQUIPMENT GUARDS

- A. Provide easily removable expanded metal guards for all belts, couplings, exposed fan inlets and outlets, and other moving parts of machinery. Provide tachometer openings in the guards at least 2" in diameter, for all belt-driven or variable speed machinery. Comply with OSHA requirements for all equipment guards.

3.12 LUBRICATION

- A. Provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a metallic lubrication tube with suitable fitting to an accessible location and suitably identify it.
- B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated with a lubricant recommended by the equipment manufacturer until the Commissioner issues a Certificate of Substantial Completion for the specific equipment item or system.

3.13 DATE OF COMPLETION AND TESTING OF MECHANICAL SYSTEMS

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.
- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Engineer and Commissioner for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

3.14 EARLY OCCUPANCY

- A. Be responsible for completing those systems which are necessary to allow partial occupancy of the buildings even if systems in the unoccupied areas are incomplete.
- B. Verify requirements for temporary occupancy with the local Building Department.

3.15 REMOVAL WORK

- A. Particular care shall be taken to avoid creating hazards on the site or causing disruption of service in the adjoining buildings.
- B. All existing equipment indicated to be removed shall be done in a neat and workmanlike manner. All existing equipment indicated to be turned over the City of New York shall be presented to the City of New York in good condition to a location designated by City of New York. All other equipment shall be removed from the premises.
- C. Follow state and federal regulations for disposal of any hazardous materials (such as CFC Refrigerant and Glycol).

- D. Provide written documentation to the City of New York that all hazardous materials have been disposed of properly.

3.16 ASBESTOS REMOVAL

- A. It is not expected that hazardous materials will be encountered in the Work.

END OF SECTION 23 00 02

SECTION 23 00 05 – ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work. Coordinate access doors with Sections 08 31 13 and 23 00 05.

1.2 WORK INCLUDED

- A. Access Doors in Drywall (See architectural drawings and specifications).
- B. Access Doors in Ceilings(See architectural drawings and specifications).
- C. Fire Rated Access Doors.
- D. Color Coded Buttons.

1.3 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction by location within the project.

PART 2 - PRODUCTS

- 2.1 Wherever access is required through walls or ceilings to valves, fire dampers, fire and smoke dampers, automatic and balancing dampers, or other concealed equipment installed under this Division, furnish access doors as follows:

- A. Flush door in drywall:

- 1. Milcor – Type DW
- 2. KARP – Type KDW
- 3. Williams Brothers – Type WB
- 4. Elmdor – Type AP
- 5. Or Approved Equal

- B. Recessed door in walls and ceilings:

- 1. Milcor – Type AP
- 2. Karp – Type RDW
- 3. Williams Brothers – Type WB-RDW
- 4. Elmor – Type AT
- 5. Or Approved Equal

- C. Recessed door in finished plaster or ceramic tile:

- 1. Milcor – Type AP
- 2. Karp – Type KATR
- 3. Williams Brothers – Type WB-AP
- 4. Elmdor – Type AP
- 5. Or Approved Equal

- D. In fire rated construction:
 - 1. Milcor – Type UFR
 - 2. Karp – Type 350 FR
 - 3. Williams Brothers – Type WB-ATR
 - 4. Elmdor – Type FR
 - 5. Or Approved Equal
 - E. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.
 - F. Access doors will be installed under another Division. Coordinate all sizes and locations with General Contractor.
 - G. No access door shall be installed until location and type have been approved by the Commissioner.
- 2.2 Furnish color coded buttons or tabs to indicate location of valves, dampers or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".
- 2.4 ACCEPTABLE MANUFACTURERS:
- A. Miller
 - B. Karp
 - C. Williams Brothers
 - D. Elmdor
 - E. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate sizes and location of all access doors with General Contractor.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of valve and damper locations indicating proposed access door locations for review by the Commissioner prior to installation of valves, dampers, etc. Include equipment of other trades on the Drawing.

END OF SECTION 23 00 05

SECTION 23 02 00 – FIRESTOPPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a U.L. approved firestopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. Submit certification by local authorities and U.L. for the complete system of firestopping for each type penetration.
- E. Submit complete details of each type of penetration to be used indicating the proper U.L. approved firestop system and U.L. system number.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.
- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.
- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.

Line #	Penetrating Item	Type of Rated Wall/Floor	Rating (Hrs.)	U.L. System #
1	Steel Pipe (12" or smaller)	Concrete or Concrete Block	3	399
2	Steel Pipe or EMT Conduit	Concrete or Concrete Block	2	215, 216, 223

Line #	Penetrating Item	Type of Rated Wall/Floor	Rating (Hrs.)	U.L. System #
3	Steel Pipe or EMT Conduit	Concrete or Concrete Block	1	221
4	Steel Pipe or EMT Conduit	Gypsum Wall	2	425
5	Steel Pipe or EMT Conduit	Wood Floor Assembly	2	306
6	Copper Pipe (not insulated)	Concrete or Concrete Block	2	400
7	Insulated Steel Pipe/Conduit	Concrete or Concrete Block	2	301
8	Insulated Copper Pipes(s)	Concrete or Concrete Block	2	310, 402, 403
9	PVC Pipe (6" or smaller)	Concrete or Concrete Block	2	300, 226
10	PVC Pipe (4" or smaller)	Concrete or Concrete Block	3	300
11	PVC Pipe (4" or smaller)	Gypsum Wall	2	312, 227, 228
12	PVC Pipe (4" or smaller)	Wood Floor Assembly	2	303
13	CPVC and PB Pipe	Concrete or Concrete Block	2	226
14	ABS Pipe (2" or smaller)	Gypsum Wall	2	227
15	PP Pipe (4" or smaller)	Concrete or Concrete Block	2	300
16	Glass Pipe (4" or smaller)	Concrete or Concrete Block	2	302
17	Cables (Power, Control, Phone)	Concrete or Concrete Block	2, 3	222, 224, 307
18	Cables (Power, Control)	Gypsum Wall	2	425
19	Phone Cable (25 pair or smaller)	Wood Floor Assembly	2	304
20	Joints (up to 3" wide)	Concrete or Concrete Block	2	214
21	Blank Opening	Concrete or Concrete Block	2	311

PART 2 - PRODUCTS

2.1 FIRESTOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.

- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:

- 1. Penetrations for the passage of through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
- 2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.2 MATERIALS

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.

2.3 ACCEPTABLE MANUFACTURERS

- A. Hilti
- B. Dow Corning
- C. Flamesafe
- D. International Protective Coatings
- E. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- 3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- 3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- 3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Install firestop materials as indicated in accordance with design requirements and manufacturer's instructions.
- B. Seal all holes or voids made by penetrations to ensure an air, smoke and water-tight seal.

3.8 Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.

3.9 Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.

3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the Commissioner prior to penetrating any load bearing assembly.

3.12 Firestop systems are not intended to support live loads or traffic. Contractor shall consult the Commissioner if he has reason to believe these limitations may be violated.

3.13 FIRESTOPPING

A. Insulated Cold Pipes

1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.
2. Eliminate insulation for depth of wall and fill space between with firestop expanding foam leaving sufficient space at each end of sleeve for proper depth of firestop.
3. Install firestop material at each end of sleeve to form a U.L. approved system.
4. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.

B. Hot Pipes (Up to 220°F)

1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.
2. Eliminate insulation for depth of wall and, using section of specified insulation as backing, install proper depth of firestop material on each end of sleeve to form a U.L. approved system.
3. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.

C. Diesel Exhaust Pipes, Hot Pipes Over 220°F, and Kitchen Range Hood Exhaust Ducts

1. Install proper sleeve through wall with an inside diameter large enough to include specified insulation thickness.
2. Eliminate insulation for depth of wall and, using section of specified insulation as backing, install proper depth of firestop material on each end of sleeve to form a U.L. approved system.
3. Weld a 20 gauge sheetmetal expansion compensator, as shown on the Drawings, to the wall. The compensator to be formed "U" shape 2" wide and of sufficient length so as to be 6" above insulation. Pre-compress compensator, fill compensator with 6 lb. density fiberglass insulation.
4. Install specified insulation on each side of wall up to expansion compensator.

END OF SECTION 23 02 00

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
FIRESTOPPING – 23 02 00 - 6

SECTION 23 05 13 – ELECTRIC MOTORS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide electric motors in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Electric Motors.

1.3 SUBMITTALS

- A. Shop Drawings: Submit electric motor characteristics with each equipment submission.
- B. Product Data: Manufacturer's latest published data for materials, equipment, accessories and installation.

1.4 QUALITY ASSURANCE

- A. Motor efficiency is Guaranteed Minimal Efficiency according to NEMA Standard MG-1-12.53a when tested in accordance with IEEE Standard 112.

PART 2 - PRODUCTS

2.1 ELECTRIC MOTORS

- A. Provide high efficiency electric motors for driving the mechanical equipment. Motors to be of proper power, construction and speed to suit the specified makes of equipment; if other makes of equipment are accepted, the proper adjustment of motor speed, power, and work of Division 26 must be included without additional cost to the Contract.
- B. 1/2 horsepower and larger motors to be rated at 460 volts for operation on 480 volt, 3 phase, 60 hertz, alternating current systems, except as otherwise noted. 1/3 horsepower and smaller motors to be rated at 115 volts for operation on 120 volt, single phase, 60 hertz, alternating current systems, except as otherwise noted.
- C. Motors to be of constant speed, squirrel-cage type. Single phase motors to be capacitor start, induction run, or split phase type as approved for the service. Motors over 100 horsepower to be suitable for operation with reduced-voltage auto-transformer type starters.
- D. All 1/2 horsepower and larger motors to have Class B insulation suitable for ambient temperature of 40°C. when operated at 115% load.
- E. All motors to be of quiet operation, guaranteed to fulfill the specified requirements without producing any sound audible outside of Machine Rooms. All belt connected motors to have adjustable bases and set screws to maintain proper belt tension; provide proper belt guards.
- F. All motors and accessories to comply in all respects with NEMA standards.
- G. Coordinate the NEMA type of each motor with the torque and inertia load of the equipment served, and the inrush characteristics of the motor with the starter selection, so that all items furnished constitute a properly related package. No motor to operate in the service factor range.

- H. Fan motors to be capable of accelerating their respective fans from 0 revolutions per minute to design or synchronous revolutions per minute within a maximum of 10 seconds. Submit for approval curves which plot time versus revolutions per minute for the particular motor and fan combination.
- I. All motors used in variable speed applications to be suitable for use with variable frequency drives.
- J. Motorized equipment rated at more than 1000 watts to have a power factor not less than 95 percent under rated nameplate conditions. Provide corrective devices where required to achieve this.
- K. Provide thermistor protection for windings on all motors 25 horsepower and above. Where motors are controlled by individual motor starters, provide relays for installation under Division 26. Relays in "motor control centers" to be provided by the Contractor furnishing the motor control centers.
- L. All vertical motors 150 horsepower and above to be provided with bearing temperature detectors on thrust bearing. Provide contactors and circuitry to give remote alarm at temperatures above 175°F.

2.2 ACCEPTABLE MANUFACTURERS

- A. General Electric
- B. Marathon
- C. Lincoln
- D. Siemens-Allis
- E. Or Approved Equal

PART 3 - EXECUTION

3.1 WIRING

- A. Wiring between motor and controllers will be performed under Division 26.
- B. Review Division 26 and Section 23 09 23 documents for required accessories, interlocks, etc. Failure to fully coordinate this item with the other Divisions in no way relieves this Contractor from providing a complete, functional, and coordinated system as described.

END OF SECTION 23 05 13

SECTION 23 05 23 – VALVES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide valves in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Gate Valves.
- B. Globe Valves.
- C. Y-Pattern Globe Valves.
- D. Non-Lubricated Plug Valves.
- E. Check Valves.
- F. Ball Valves.
- G. Butterfly Valves.
- H. Automatic Flow Control Valves.

1.3 SUBMITTALS

- A. Valve List: Figure numbers and catalog cuts of proposed valves.
- B. Product Data: Manufacturer's latest published data for materials, intended service and installation.

1.4 QUALITY ASSURANCE

- A. Valves and valve construction to be suitable for the pressure, temperature, and fluid quality of the service in which they are to be used.
- B. All valves to be in accordance with ANSI, AWWA, ASTM, MSS-SP-70 & 80 (Manufacturers Standardization Society), and ASME standards and specifications.
- C. Minimum test pressure for all valves to be 1.5 times maximum system working pressure unless noted otherwise.
- D. Provide butterfly valves suitable for dead end service and constructed of high quality industrial design.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide valves of the same manufacturer throughout where possible.
- B. Provide valves with manufacturer's name and pressure rating clearly marked on the outside of body.
- C. Provide valves suitable for connection to adjoining piping as specified for pipe joints.
- D. All valves to be full pipe size unless noted otherwise.
- E. Provide all valves used for future connection with lockable handles.

2.2 GATE VALVES

- A. Use for stop and isolation in steam systems, water systems over 200°F, and as shown on Drawings for other water systems.
- B. 2" and smaller valves with rising stem, screwed bonnet, inside screw and wedge gate. Bronze body and trim with screwed ends for steel piping and sweated ends for copper piping.
- C. 2½" and larger valves with rising stem, bolted bonnet, outside screw and yoke, wedge gate, iron body with bronze trim and flanged ends for steel piping and bronze body for copper piping.
- D. Gate valves to be backseating and suitable for repacking under pressure. Packing to be non-asbestos.
- E. Acceptable Manufacturers
 - 1. Grinnell
 - 2. Crane
 - 3. Hammond
 - 4. Milwaukee
 - 5. Stockham
 - 6. Nibco
 - 7. Or Approved Equal

2.3 GLOBE VALVES

- A. Use for throttling in steam and water systems.
- B. 2" and smaller valves bronze body and trim with rising stem, screwed bonnet with screwed ends for steel piping and sweated ends for copper piping.
- C. Globe valves to be suitable for repacking under pressure. Packing to be non-asbestos.
- D. Acceptable Manufacturers
 - 1. Grinnell
 - 2. Crane
 - 3. Hammond
 - 4. Milwaukee
 - 5. Stockham
 - 6. Nibco

7. Or Approved Equal

2.4 Y-PATTERN GLOBE VALVES

- A. Use for throttling in water service ½" to 12".
- B. Provide valves of Y-Pattern design suitable for water temperatures to 250°F. Provide valves with provision for connecting a portable differential pressure meter. Each meter connection to have pressure/temperature readout points.
- C. Construct valves up to 2" of pressure die cast nonporous copper alloy and 2½" and over of cast iron body and nonferrous copper alloy, with Teflon disc.
- D. Valves to be omnidirectional without affecting flow measurement and shall provide precise flow measurement, precision flow balancing, positive shut-off with no drip seat.
- E. Construct valves so that 4 full turns of handwheel provides maximum setting with hidden memory feature and tamper proof balancing setting.
- F. Acceptable Manufacturers
 - 1. Tour & Anderson
 - 2. Armstrong
 - 3. Or Approved Equal

2.5 NON-LUBRICATED PLUG VALVES

- A. Use for throttling in water service 2½" and larger.
- B. Provide valves of the non-lubricated bolted bonnet type with resilient faced plugs suitable for water systems to 250°F.
- C. Provide port area of valves through 20" at least 80% of full pipe area.
- D. Valve bodies of ASTM A126 Class B semi-steel with corrosion resistant seats of 90% nickel overlay.
- E. Furnish valves with replaceable, sleeve-type springs, washers, etc., zinc plated.
- F. Valves through 6" provided with an adjustable open position "memory stop" and level. Valves 8" and larger equipped with a totally enclosed worm and gear operator with handwheel and a "memory stop."

2.6 CHECK VALVES

- A. Swing Type: Use for water and low pressure general services: 2" and smaller with screwed bonnet, screwed end for steel piping and sweated end for copper piping; 2½" and larger with bolted bonnet, flanged end. Valves to have renewable bronze seat and disc.
- B. Silent Type: Use on pumps with cycling control and larger than 2" discharge. Valves to have cast iron body with bronze or stainless steel trim and to be of the center guide type, with flanged end.
- C. Wafer Type: Provide wafer type check valves for use in pipe 24 inches diameter and larger. Check valves to be wafer type with steel body and discs, and flanged ends.

D. Acceptable Manufacturers

1. Grinnell
2. Crane
3. Milwaukee
4. Hammond
5. Nibco
6. Or Approved Equal

2.7 BALL VALVES

- A. Use for stop, isolation and as drain valves, in water systems up to 200°F and pipe sizes to 3".
- B. Provide ball valves of the bronze top-entry body type, having a straight-through full port flow passage. Design to permit disassembly without removing body from line.
- C. Construct seats and all gland packing of Teflon. Lever handle to be vinyl covered. Body to be 2-piece screwed end for steel piping and sweated end for copper piping.
- D. Provide lever for quarter turn operation; lever to indicate open or closed position.
- E. When used as drain valves, provide with hose thread and brass cap with chain. Cap to be rated for full system pressure.
- F. Acceptable Manufacturers

1. Apollo
2. Nibco
3. Stockham
4. DeZurik
5. Or Approved Equal

2.8 HIGH PERFORMANCE BALL VALVES

- A. Use for stop, isolation and as drain valves, in water systems up to 400°F and pipe sizes to 3".
- B. Provide high performance ball valves of the stainless steel top-entry body type, having a straight-through full port flow passage. Design to permit disassembly without removing body from line. Body to be 2-piece screwed end.
- C. Shafts to be constructed of 316 stainless steel with stellite surfaced bearing areas. Shaft bearing to be ceramic filled TFE.
- D. Construct seats of stellite faced 316 stainless steel and all gland packing of ceramic filled multiple V-ring TFE.
- E. Provide lever for quarter turn operation; lever to be vinyl covered and indicate open or closed position.
- F. When used as drain valves, provide with hose thread and brass cap with chain. Cap to be rated for full system pressure.
- G. Acceptable Manufacturers

1. Apollo
2. Nibco

3. Stockham
4. DeZurik
5. Or Approved Equal

2.9 BUTTERFLY VALVES

- A. Use for stop and isolation in water systems up to 200°F and pipe sizes 2½" and larger.
- B. Butterfly valves to have ductile iron lug body, 316 stainless steel stem with bronze bushings and aluminum bronze disc.
- C. The stem journals will be a multiple seal design providing for completely independent seals. The stem disc assembly will be such that the need for pins, screws or bolts is not required. Positive stem retention to be provided to permit removal of handle or actuator while under full operating pressure.
- D. The valve seats to consist of replaceable resilient elastomer.
- E. Valves to size 6" to be supplied with multi-position handles; size 8" and over to be supplied with enclosed worm gear operator.
- F. Valve body to be full-lug pattern to comply with MSS-SP-67 and be compatible with ANSI pattern flanges of appropriate pressure rating.
- G. Acceptable Manufacturers
 1. Grinnell
 2. Jamesbury
 3. Centerline
 4. Keystone
 5. Nibco
 6. Or Approved Equal

2.10 HIGH PERFORMANCE BUTTERFLY VALVES

- A. Use for stop and isolation in water systems up to 400°F and pipe sizes 2½" and larger.
- B. Butterfly valves to have steel lug body, one piece 316 stainless steel stem with bronze bushings and 316 stainless disc with chrome plated seating edge. Drive end of shaft to be squared to provide positive actuator connection.
- C. The stem journals will be a multiple seal design providing for completely independent seals. Positive stem retention to be provided using solid type 316 stainless steel keys locked in place, to permit removal of handle or actuator while under full operating pressure.
- D. Design discs with a concave face to reduce dynamic torque, decrease turbulence and maximize flow capacity.
- E. Provide disc-to-shaft pins of stainless steel and of the tangential or compressive type. Pins shall be subject to compression forces only, no shear forces.
- F. The valve seats to consist of replaceable PTFE seating surface with a titanium retaining ring.
- G. Shaft bearings to be of reinforced PTFE and thrust bearing to be a combination of reinforced PTFE with 316 stainless steel.

- H. Provide packing of multiple PTFE V-ring design with adjustable gland follower and 316 stainless gland.
- I. Valves to size 6" to be supplied with multi-position handles; size 8" and over to be supplied with enclosed worm gear operator.
- J. Valve body to be full-lug pattern to comply with MSS-SP-67 and be compatible with ANSI pattern flanges of appropriate pressure rating.
- K. Acceptable Manufacturers
 - 1. DeZurik
 - 2. Flow Seal
 - 3. Contromatics
 - 4. Or Approved Equal

2.11 AUTOMATIC FLOW CONTROL VALVES

- A. Provide automatic pressure-compensating flow control valves with extended valve body and dual temperature/pressure test ports. Provide performance certification of valves by an independent laboratory to the Engineer.
- B. Valve to be manufactured in one piece and to consist of ground joint union, flow control and test plugs.
- C. All valves to be factory set to control the flow rate within 4 percent of the selected rating over an operating pressure differential of at least 10 times the minimum required for full flow conditions.
- D. Valves to be brass and stainless steel with threaded or sweat connections.
- E. Provide all valves with unions to allow field exchange of internal components without removing the valve body from the pipeline.
- F. Mark all valves in a permanent manner to show direction of flow and flow rate.
- G. Provide valves rated for a minimum of 350 psi, or as necessary to meet the design conditions of the piping system.
- H. Provide test plugs with dual valve cores for pressure and temperature monitoring.
- I. Confirm the valve design flow rate by establishing that the pressure drop is within the valves' specified pressure range.
- J. Acceptable Manufacturers
 - 1. Autoflow
 - 2. Griswold
 - 3. Bell & Gossett
 - 4. Or Approved Equal

2.12 VALVE LIST

- A. The following is a listing of representative figure numbers by service, indicative of the product quality required.
- B. Water Services

Service	Type	Size	Nibco Fig. No.	DeZurik Fig. No.
Level B2 and Above to 150 psi	Globe	1½ to 2 in.	T-235Y	-
Level B2 and Above to 150 psi	Globe	2½ to 10 in.	F-718B	-
Level B2 and Above to 150 psi	Plug	2½ to 24 in.	-	118
Level B2 and Above to 150 psi	Gate	To 2 in.	T-135	-
Level B2 and Above to 150 psi	Gate	2½ to 24 in.	F-617-O	-
Level B2 and Above to 150 psi	H.P. Ball	To 2 in.	-	551
Level B2 and Above to 150 psi	H.P. Butterfly	2½ to 36 in.	-	BHP-L1
Level B2 and Above to 150 psi	Check-Swing	To 2 in.	T-433-B	-
Level B2 and Above to 150 psi	Check-Swing	2½ to 12 in.	F-918B	-
Level B2 and Above to 150 psi	Check-Silent	All	F/W 910/960	-

PART 3 - EXECUTION

- 3.1 Install valves so that they are accessible for repacking.
- 3.2 Install with stem vertical and handle up wherever possible, never with stem below horizontal position.
- 3.3 Install with operating clearance for handle and stem.
- 3.4 Install isolation valves on equipment so that valve and piping do not interfere with equipment removal or maintenance. Install unions or flanges on equipment side of valves.
- 3.5 Provide 1" drain valves with threaded ends for hose connections at drain points, at main shutoff valves, low points of piping systems, bases of vertical risers, and at equipment.
- 3.6 Provide all gate valves 8 inches and larger having a rating of over 150 lbs. with a 1-inch bypass valve of same pressure rating.
- 3.7 Provide required manual or automatic vent valves at high points of piping systems to facilitate venting of air and to ensure quiet operation.
- 3.8 Provide renewable bronze seat rings and bronze spindles for cast iron body valves.
- 3.9 Provide chain operated sheaves and chains for all valves which are more than 8 feet above the floor in Mechanical Equipment Rooms.
- 3.10 Furnish and install other valves, check valves, cocks, etc., as required for the complete and proper valving of the entire installation.
- 3.11 Install butterfly valves in horizontal piping with stem in the horizontal position so that bottom of disk lifts in the direction of flow.
- 3.12 Install butterfly valves in vertical piping at pumps with stem perpendicular to pump shaft.

END OF SECTION 23 05 23

SECTION 09 91 00 – PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide hangers, anchors and supports in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Hangers.
- B. Structure Attachments.

1.3 SUBMITTALS

- A. Shop Drawings: Submit details of pipe hangers, anchors and supports for each pipe size and pipe service. Submit details of support methods and point loadings, and anchor reactions.
- B. Product Data: Manufacturer's latest published data for materials, equipment and installation.

1.4 QUALITY ASSURANCE

- A. Hangers and supports to be constructed and applied according to the following standards:
 - 1. Manufacturer's Standardization Society MSS SP-58, SP-69 and SP-89.
 - 2. Power Piping Code, ANSI B31-1.

PART 2 - PRODUCTS

- 2.1 Provide hangers of heavy construction suitable for the size of pipe to be supported. All materials to be of steel, except rollers which are to be of wrought or malleable iron. Hangers for pipes up to and including 5 inches to be adjustable swivel ring, split ring, wrought pipe clamp, or adjustable wrought clevis type. Hangers for pipes 6 inches and above to have 2 rods and cross-rod with cast iron pipe roll complete with adjustable sockets and nuts.
- 2.2 Support vertical piping with double bolt riser clamps attached to the pipe, resting on the floor slab. In general, use one clamp for each two floors and one clamp at each floor for copper tubing. Where pipes are in open shafts, provide forged steel bar brackets fixed to wall.
- 2.3 Support vertical piping risers on base elbow supports. Supports to be no less than one pipe size smaller than riser.
- 2.4 The following tables will establish a minimum level of acceptance for pipe hangers, supports and attachments.

A. Hangers and Supports

Service	Hanger Type	Grinnell Figure No.	Maximum Pipe Size
Uninsulated Steel	Clevis	260	5"
Uninsulated Copper	Clevis	CT-65	4"

Service	Hanger Type	Grinnell Figure No.	Maximum Pipe Size
All (Steel Pipe)	Riser Clamp	261	20"
(Copper Pipe)	Riser Clamp	CT-121	4"
All Insulated	Roller Hanger	171	24"
Chilled & Condenser Water	Base Plate & Roll	277	24"
All	Trapeze	46	24"
All	Wall Bracket	195	5"
All	Wall Bracket	199	12"

B. Structure Attachments

Type	Grinnell Figure No.	Maximum Rod Size (Inches)	Maximum Pipe Size
Beam Clamp	218	7/8	8"
Beam Clamp	228	1½	24"
Side Mount Clamp	225	7/8	8"
Channel Clamp	226	7/8	8"
Expansion Shield	281	7/8	8"

2.5 ACCEPTABLE MANUFACTURERS

- A. Grinnell
- B. Pipe Shields Inc.
- C. C&S Manufacturing
- D. Or Approved Equal

PART 3 - EXECUTION

3.1 Support horizontal piping in accordance with the following schedule (See schedule below):

Pipe Size	Maximum Hanger Spacing	Rod Size
1" and smaller	6'-0"	3/8"
1¼" to 2"	9'-0"	3/8"
2½" to 3"	10'-0"	1/2"
4" to 5"	12'-0"	5/8"

Pipe Size	Maximum Hanger Spacing	Rod Size
6"	12'-0"	3/4"
8" to 12"	12'-0"	7/8"
14" to 16"	12'-0"	1"
18"	12'-0"	1-1/8"
20"	12'-0"	1-1/4"
24"	12'-0"	1-1/2"

- 3.2 Provide hangers at each change in direction and both sides of each valve.
- 3.3 Support hangers from concrete inserts or beam clamps. Furnish, locate and set such inserts and make sure that such inserts are in place when the concrete is poured. Construct inserts of malleable iron or pressed steel with space for rods of all sizes. Install all inserts for pipes 3" and larger in size with a reinforcing rod 5/8" in diameter run through a slot in the insert specifically provided for this purpose.
- 3.4 If any pipe is to be hung in a space where no inserts have been provided, drill holes in the slab (subject to the Structural Engineer's prior approval) and provide rods and hanger attached to an approved fishplate or install double expansion shields connected by a 2" x 2" angle, from which the hanger rod is to be suspended. For pipe size 2" and under, use single shields but the hanger spacing defined hereinbefore to be reduced to 5'-0". The carrying capacity and size of each shield to be calculated on the basis of the spacing indicated above but the minimum size to be 3/8". Install additional shields of the same size so that the number of hangers are of adequate size to support the loads which they carry. Shields may be used in concrete slabs only.
- 3.5 Regardless of the type of construction (i.e., concrete, concrete-deck-steel or other variations) take particular care to support all main lines and all large and heavy pipes in an approved manner, including the furnishing and installation of supplementary steel, if required. Supplementary steel sections are to be mill-rolled. Submit shop drawings, indicating support methods, point loadings to the building structure and hanger locations for review sufficiently in advance of concrete pouring schedules to permit evaluation, critique and any necessary changes to handling and support methods.
- 3.6 Set all inserts for all pipes in ample time to allow concrete work to be performed on scheduled time.
- 3.7 Hangers may be directly attached to steel beams of building construction, where they occur, if approved by Commissioner. Smaller pipes may be suspended from crosspieces of pipe or steel angles, which in turn, are to be securely fastened to building beams or hung from building concrete construction by means of rods and inserts. The intention is to provide supports which, in each case, will be amply strong and rigid for the load, but which will not weaken or unduly stress the building construction.
- 3.8 Provide approved roller support, floor stands, wall brackets, etc., for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or walls. Pipelines near walls may also be hung by hangers carried from approved wall brackets at a level higher than the pipe.
- 3.9 Do not hang piping from other piping. Support of hangers by means of vertical expansion bolts is not permitted.

- 3.10 Wherever hangers using pipe rolls are used provide approved steel pipe covering protection saddles, spot welded to the piping at each hanger location. Vapor barrier jackets to cover shield.
- 3.11 Anchor piping where shown on Drawings and as required to localize expansion or to prevent undue strain on piping and branches. Anchors to be entirely separate from hangers. All anchor designs to be submitted for approval and to include piping reactions which respective anchors are capable of supporting. Provide all indicated or required expansion loops.
- 3.12 Support all lines of copper tubing individually by approved type hangers not more than 6' apart, or as shown on the drawings. Use hangers especially designed for copper tubing and of exact outside diameter of tubing. On hangers for covered tubing, use broad straps fitting outside of covering.
- 3.13 Hangers used for cold piping will support the pipe without piercing the insulation. Use insulation shields to protect the insulation on cold pipes. Weld insulation protection saddles to insulated hot pipes, or any piping subject to axial movement, at roller supports. Space between pipe and saddle to be filled with insulation. Wherever fibrous glass pipe insulation is installed, install calcium silicate of equal thickness in lieu thereof, wherever hangers and insulation shields bear on insulation. Vapor barrier jackets to cover shields.
- 3.14 For piping 4" and larger, support the elbows of the piping adjacent to the pumps with steel base elbow supports from the inertia base which pump is on to prevent loading heavy weights of piping on pump casing. Where inertia base is not provided, base elbows to be supported on floor with 1" neoprene pad.
- 3.15 Support risers using base elbow supports, no smaller than one pipe size, mounted on 1" neoprene pad and concrete housekeeping pad. Submit pipe loads to Commissioner for review.
- 3.16 ATTACHMENTS TO EXISTING STEEL DECK SLAB
- A. Attachments to existing steel deck to be limited to loads of 500 lbs. Heavier loads to be supported by supplementary structural steel connected to structural beams. Provide all required supplementary steel.
- B. Attachments with loads only up to 500 lbs. is to be accomplished by drilled-in expansion shield type anchors located on the center line of the concrete filled ribs.
- C. No attachments will be permitted to existing electrified decks. If hanger attachments are not existing, all new attachments to be supported from supplementary steel provided by Mechanical Contractor.
- D. 500 lb. load attachments must not be spaced less than 5'-0" apart, and are to be located as close to steel beams as possible.
- E. Furnish and locate sleeves, cut holes through deck, reinforce deck, and set sleeves. Coordinate sleeve locations with deck subcontractor and electrical distribution. Submit drawings showing location of holes and proposed reinforcing for approval before proceeding with installation.

END OF SECTION 23 05 29

SECTION 23 05 40 – ACOUSTICS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide acoustical treatment in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Sound Attenuating Units.
- B. Sound-Lining.

1.3 SUBMITTALS

A. Shop Drawings

- 1. Sound attenuators.
- 2. Sound-Lining.
- 3. Certification that sound-lining meets erosion test method described in U.L. Publication No. 181 erosion test method.
- 4. Non-hardening caulking.
- 5. Certified Tests:
 - a. Submit certified test data from approved laboratory for pressure drop and insertion loss ratings:
 - 1) For square or rectangular attenuators: 24 in. x 24 in. cross-section attenuator.
 - 2) Certification data for pressure drop and net insertion loss: based on tests of same attenuator.
 - 3) Attenuators and tests: subject to inspection upon request.

1.4 QUALITY ASSURANCE

A. Acoustical Criteria

- 1. Noise levels, due to equipment and ductwork, to permit attaining sound pressure levels in all 8 octave bands in occupied spaces will conform to the following NC curves:
 - a. Lobbies, corridors, toilets, spaces within 10 feet of duct penetrations through walls and floors of fan rooms: NC-40.
 - b. Public Dining Area: NC-45.
 - c. All other spaces: NC-35.
- 2. In addition to complying with the standard full octave band sound pressure levels based on NC criteria, acoustical performance of fans, air handling units, terminal devices, pressure regulating boxes, etc., when operating under design conditions shall not create any objectional pure tones. A pure-tone is defined as a peak sound pressure level which, when measured in 1/3 octave band frequencies, is higher by more than 5 dB's than adjacent 1/3 octave band frequencies.

B. Mechanical Performance

1. Air distribution system equipment; terminal device noise:
2. Maximum permissible sound-power levels in octave bands of airborne transmissions through the combination of grilles, registers, diffusers, and terminal units, or related pressure reducing devices, when operated in installed condition per Plans and Specifications is as follows:

Octave Bands	Maximum PWL re 10^{-12} Watts				
	NC-30	NC-35	NC-40	NC-45	NC-50
1	58	62	66	68	70
2	52	56	60	63	66
3	45	49	54	58	62
4	41	46	51	56	61
5	38	43	48	53	58
6	37	42	47	52	57
7	36	41	46	51	56
8	37	42	47	52	57

C. Pressure reducing boxes above ceiling; radiated noise:

1. Maximum permissible radiated sound-power levels in octave bands when operated in installed condition over occupied spaces, is as follows:

Octave Bands	Maximum PWL re 10^{-12} Watts			
	NC-35	NC-40	NC-45	NC-50
1	72	76	79	82
2	70	74	77	80
3	61	65	68	71
4	60	64	68	72
5	57	62	68	72
6	56	60	65	70
7	66	70	75	80
8	65	70	75	80

D. Provide sound-lining in accordance with U.L. 181.

E. Provide all materials in accordance with NFPA, U.L. and state and local codes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sound Attenuators

1. Factory prefabricated.
2. Shell:
 - a. Galvanized Steel: Minimum No. 22 USSG.
 - b. Leakproof at pressure differential of 8 in. wg.
3. Media:
 - a. Maximum Flamespread: 25.
 - b. Maximum Fuel Contributed and Smoke Developed: 50.
 - c. Minimum 4.5 lbs. per cubic foot density glass or mineral fiber packed under 5 percent compression.
 - d. Filler to be inert, vermin and moisture proof.
4. Internal Construction:
 - a. Galvanized Perforated Steel Baffles: Minimum 24 gauge.
5. Minimum Net Insertion Ratings:
 - a. Determined by duct-to-reverberant room test method at design airflow:

Band No.	Frequency No.	Dynamic Net Insertion Loss (db) Sound Trap Types					
		3L	5L	7L	3S	5S	7S
2	125	5	7	13	12	18	20
3	250	9	13	18	24	16	35
4	500	14	21	28	28	40	45
5	1000	23	29	40	35	45	50
6	2000	24	39	47	35	46	48

6. Maximum Self-Generated Noise:
 - a. At 2000 ft. per minute face velocity and 4 sq. ft. face area:

Band No.	Band Center Frequency Hz	Sound Power Level (db) re 10 ⁻¹² watts Sound Trap Types
		L Series
2	125	51
3	250	51
4	500	49

Band No.	Band Center Frequency Hz	Sound Power Level (db) re 10 ⁻¹² watts Sound Trap Types
		L Series
5	1000	47
6	2000	50

- b. At 1000 feet per minute face velocity and 4 sq. ft. face area:

Band No.	Band Center Frequency Hz	Sound Power Level (db) re 10 ⁻¹² watts Sound Trap Types
		S Series
2	125	49
3	250	49
4	500	47
5	1000	46
6	2000	49

B. Sound-Linings

1. Fiber glass.
2. Facing for Low Pressure Duct Liner:
 - a. Finish: Neoprene coated.
 - b. Stenciled NFPA 90.
3. Thickness:
 - a. In ductwork: minimum 1 in. unless otherwise noted on drawings.
 - b. In plenums and in supply duct downstream of local floor equipment rooms: minimum 2 inches, 3 pound density, semi-rigid.
 - c. For sound-lining used as thermal insulation minimum thickness shall conform to requirements as specified in Section on Insulation.
4. Minimum density: 1½ lb. per cu. ft. in ducts. 3 lb. per cu. ft. in plenums.
5. Flamespread: Maximum 25.
6. Fuel Contributed and Smoke Developed: Maximum 50.
7. Suitable for duct velocity of 4000 fpm. Meet erosion test method described in U.L. Publication No. 181.
8. Dynamic Loss Coefficient: Maximum 1.2.
9. K Factor: Maximum .25 Btu/hr./°F/in.
10. ASTM Noise Reduction Coefficient (NRC) for 1 inch thick lining: minimum 0.70.

C. Adhesive and Sealer

1. Adhesive: Similar to Benjamin Foster 85-20.
2. Sealer: Similar to Benjamin Foster 85-20.

D. Non-Hardening Caulking

1. Guaranteed to be permanently elastic.
2. Similar to Tremco Polybutene.

2.2 ACCEPTABLE MANUFACTURERS

A. Sound Attenuators

1. Industrial Acoustics Co.
2. Vibro-Acoustics
3. Dynasonics (P.C.I.)
4. Or Approved Equal

B. Sound-Linings

1. Certainteed Products Corp.
2. Johns-Manville Corp.
3. Owens-Corning Fiberglas Corp.
4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION

A. In order to obtain satisfactory acoustical performance of the terminal devices, complete the following:

1. Proper duct connections at inlet to the terminals.
2. Proper air-balancing.
3. Avoid excessive dampering right at the terminals.

B. Sound Attenuators

1. Install in accordance with manufacturer's recommendations to obtain noted performance.

C. Sound-Linings

1. Adhere with 6 in. wide strips of adhesive.
 - a. 12 in. on centers.
 - b. At joints in lining.
2. In addition, secure with weld pins and 2 in. diameter washers on maximum 16 in. centers.
3. Coat all edges with sealer and caulk all butt joint seams.
4. Provide continuous sheetmetal edge protection at entering and leaving edges of lined duct sections and all joints.
5. Dimensions of lined ductwork are clear inside dimensions after lining has been installed.
6. Extent of Ductwork Sound-Linings:
 - a. Outside air supply systems a minimum distance of 25 feet downstream of fan.
 - b. Ventilation Systems: As indicated on Drawings.
 - c. Exhaust Systems: As indicated on Drawings.
7. Sound-Lined Plenums: As indicated on Drawings.
8. All transfer and jumper ducts.

D. Soundproofing of Construction

1. Required for packing between ductwork and the following construction:
 - a. Equipment room walls.
 - b. Floors, except in shafts.
 - c. Sound barrier ceilings.
2. Soundproofing:
 - a. Fill openings with fiber glass blanket or board for full depth of penetration.
 - b. Caulk each side of opening with non-hardening, non-aging caulking compound similar to Johns-Manville "Duxeal".
3. Soundproofing may be deleted when firestopping material is provided.

E. Ductwall External Soundproofing

1. Extent:
 - a. Vane axial fans including their inlet and discharge transitions and sound attenuators.
 - b. Where indicated on Drawings.
2. Soundproofing Material:
 - a. Fiber Glass:
 - 1) Board: 6 lb./cu. ft. density.
 - 2) Thickness: ½ in. greater than height of ductwork angles, but 2 in. minimum.
 - b. External Jacket:
 - 1) Lead Sheet:
 - a) Overlapped 2 in.
 - b) Secured with tape.
 - c) Weight: 1 lb. per sq. ft.
 - d) Thickness: 1/64 inch.

F. Tests

1. Sound Attenuators:
 - a. After Installation: Measure total system pressure before and after attenuators.
 - b. If pressure loss exceeds maximum static pressure scheduled on drawings: at no charge, replace attenuators and/or modify entrance and/or discharge aerodynamic flow to obtain specified performance.

END OF SECTION 23 05 40

SECTION 23 05 48 – VIBRATION ISOLATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide vibration isolation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Vibration isolation elements for piping and equipment.
- B. Equipment isolation bases.
- C. Seismic restraints.

1.3 SUBMITTALS

A. Manufacturer's Data

1. Catalog cuts and data sheets on specific vibration isolators to be utilized showing compliance with the specifications.
2. An itemized list showing the items of equipment or piping to be isolated, the isolator type of model number selected, isolator loading and deflection, and reference to specific drawings.
3. An itemized list of non-isolated equipment, piping, and ductwork to be seismically restrained.
4. Seismic restraint calculations.
5. Written approval of the base design to be obtained from the equipment manufacturer.

B. Shop Drawings

1. Drawings showing equipment base constructions for each machine, including dimensions, structural member sizes and support point locations.
2. Drawings showing methods of suspension, support guides for piping and ductwork.
3. Drawings showing methods for isolation of pipes and ductwork piercing walls and floor slabs.
4. Concrete and steel details for bases including anchor bolt locations.
5. Number and location of seismic restraints and anchors for each piece of equipment and of ductwork and piping.
6. Specific details of restraints, including anchor bolts for mounting and maximum loading at each location for each piece of equipment and lengths of ductwork and piping.
7. Provide installation instructions, drawings and field supervision to assure proper installation and performance.

1.4 QUALITY ASSURANCE

- A. Provide control of excessive noise and vibration in the buildings due to the operation of machinery or equipment, and/or due to interconnected piping, ductwork or conduit. Installation of vibration isolation units, and associated hangers and bases, under the direct supervision of the vibration isolation manufacturer's representative.

1. All vibration isolators shall have either known undeflected heights or calibration markings so that, after adjustment, when carrying their load, the deflection under load can be verified, thus determining that the load is within the proper range of the device and that the correct degree of vibration isolation is being provided according to the design.

2. All isolators shall operate in the linear portion of their load versus deflection curve. Furnish load versus deflection curves linear over a deflection range of not less than 50% above the design deflection.
 3. The ratio of lateral to vertical stiffness to be not less than 0.9 nor greater than 1.5.
 4. The theoretical vertical natural frequency for each support point, based upon load per isolator and isolator stiffness shall not differ from the design objectives for the equipment as a whole by more than $\pm 10\%$.
 5. All neoprene mountings shall have a Shore hardness of 40 to 65, after minimum aging of 20 days or corresponding oven-aging.
- B. Adhere to SMACNA Guidelines for Seismic Restraints of Mechanical Systems.
- C. Adhere to ASHRAE Guide 1995 Chapter 50.
- D. Design seismic restraints in accordance with Local Code Seismic Zone 2.
- E. Manufacturer of vibration isolation equipment has the following responsibilities:
1. Determine vibration isolation and seismic restraint sizes and locations.
 2. Guarantee specified isolation system deflection.
 3. Provide piping and equipment isolation systems and seismic restraints as scheduled or specified.
 4. Provide installation instructions, drawings and field supervision to assure proper installation and performance.
- F. Structural or civil engineer's stamp verifying design and calculations for seismic restraining systems used.
- G. Substitution of internally isolated mechanical equipment in lieu of the specified isolation of this Section must be approved for individual equipment units and is acceptable only if above acceleration loads are certified in writing by the equipment manufacturer and stamped and sealed by a licensed civil or structural engineer and approved by Commissioner.
- H. Purchased and/or fabricated equipment must be designed to safely accept external forces of 1.0g load in any direction for all rigidly and resiliently supported equipment, piping and ductwork without failure and permanent displacement of the equipment. Life safety equipment such as fire pumps, smoke exhaust fans, emergency generators and other life safety designated equipment must be capable of accepting external forces of up to 1.5g in any direction without permanent displacement or failure of the equipment.
- I. Vibration isolation firms having a minimum three years' experience designing and installing vibration isolation and seismic restraint systems shall be qualified to provide the materials and installation required by this section. Project listings shall be provided including geographical location and a reference contact.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All vibration isolation devices to be the product of a single manufacturer.
- B. Where spring isolation systems are described in the following specifications, the mounting assemblies shall utilize bare springs with the spring diameter not less than 0.8 of the loaded operating height of the spring. Each spring isolator shall be designed and installed so that the ends of the springs remain parallel. The minimum deflection from loaded operating height to spring solid height shall be 50% of the rated static deflection of the spring.

- C. Where neoprene-in-shear isolation systems are described in the following specifications, the mounting assemblies shall utilize bare neoprene elements with unit type design molded in oil resistant neoprene. The neoprene shall be compounded to meet the following:
1. Shore hardness of 35 to 65 \pm 5, after minimum aging of 20 days or corresponding oven-aging.
 2. Minimum tensile strength of 2000 PSI.
 3. Minimum elongation of 300%.
 4. Maximum compression at 25% of original deflection.
- D. All mounting systems, including seismic restraints, exposed to weather and other corrosive environments shall be protected with factory corrosion resistance. All metal parts of mountings (except springs and hardware) to be hot dip galvanized. Springs shall be cadmium plated and neoprene coated. Nuts and bolts shall be cadmium plated.

2.2 VIBRATION ISOLATORS

- A. Refer to schedule sheets for vibration isolator types to be used.

1. Type A: Bare spring isolators to incorporate the following:
 - a. Minimum ¼ inch thick neoprene acoustical base pad on underside, unless designated otherwise.
 - b. Designed and installed so that ends of springs remain parallel.
 - c. Non-resonant with equipment forcing frequencies or support structure natural frequencies.

- | | | |
|----|-------------------|------|
| 1. | Type SLF | MII |
| 2. | Type OSK | VEC |
| 3. | Type AN | VMCI |
| 4. | Or Approved Equal | |

2. Type B: Spring isolators to be same as Type A, except:
 - a. Provide built-in vertical limit stops with minimum ¼" clearance under normal operation.
 - b. Tapped holes in top plate for bolting to equipment.
 - c. Capable of supporting equipment at a fixed elevation during equipment erection. Installed and operating heights shall be identical.
 - d. Shall incorporate snubbing restraint in all directions. Cast or aluminum housings are unacceptable. System to be field bolted or welded to deck with ability to resist forces of g acceleration.

- | | | |
|----|-------------------|------|
| 1. | Type SLR | MII |
| 2. | Type KW | VEC |
| 3. | Type AWR | VMCI |
| 4. | Or Approved Equal | |

3. Type D: Elastomer isolators to incorporate the following:
 - a. Bolt holes for bolting to equipment base.
 - b. Bottom steel plates for bolting to sub-base as required.
 - c. Unit type design molded in oil-resistant neoprene.

- d. Encased in ductile steel or iron casing and capable of withstanding external forces of up to 1.0 g. System to be field bolted or welded to deck with ability to resist forces of 1.0 g.

- 1. Type BR/RBA MII
- 2. Type 368 SD VEC
- 3. Type RD VMCI
- 4. Or Approved Equal

2.3 EQUIPMENT BASES

A. Integral Structural Steel Base, Type B-1

- 1. Reinforced as required to prevent base flexure at start-up and misalignment of drive and driven units. Centrifugal fan bases complete with motor slide rails. Drilled for drive and driven unit mounting template.

a. Type WF, M MII or similar product from an acceptable manufacturer in Article 2.6.

B. Concrete Inertia Base, Type B-2

- 1. Concrete inertia bases to be formed in a structural steel perimeter base, reinforced as required to prevent flexure, misalignment of drive and driven unit or stress transfer into equipment. The base to be complete with motor slide rails, pump base elbow supports and complete with height saving brackets, reinforcing, equipment bolting provisions and isolators.
- 2. Minimum thickness of the inertia base to be according to the following tabulation:

Motor Size (hp)	Minimum Thickness (in)
5-15	6
20-50	8
60-75	10
100-250	12
300-500	18

Mason Type K, BMK, or similar from an acceptable manufacturer in Article 2.6, or approved equal.

C. Isolated Rail Base, type B-4

- 1. Rails shall be constructed from structural steel angles, as required, to prevent flexure and misalignment under load.
- 2. Each rail shall be the full length of the supported equipment and be welded to a series of vertically restrained spring isolators as Type B described above.
- 3. Angles shall have bolt-together ties at the ends and center to form one rigid base platform.

Mason Type TRSLR or approved equal product from the manufacturers in Article 2.6.

2.4 FLEXIBLE CONNECTORS

A. Elastomer Type FC-1

1. Manufactured of nylon tire cord and EPDM, both molded and cured with hydraulic presses.
2. Straight connectors to have two spheres reinforced with a molded-in external ductile iron ring between spheres.
3. Elbow shall be long radius reducing type.
4. Rated 250 psi at 170°F. Dropping in a straight line to 170 psi at 250°F for sizes 1½" to 12" elbows. Elbows shall be rated no less than 90% of straight connections.
5. Sizes 10" and 12" to employ control cables with neoprene end fittings isolated from anchor plates by means of ½" bridge bearing neoprene bushings.
6. Minimum safety factor of 4 to 1 at maximum pressure ratings.
7. Submittals to include test reports.

Mason Types SuperFlex MFNEC, MFLRR, MFTFU, MFTNC, MFTCR, or approved equal product from manufacturers in Article 2.6.

B. Flexible Stainless Hose, Type FC-2

1. Braided flexible metal hose.
2. 2 inch pipe size and smaller with male nipple fittings.
3. 2½ inch and larger pipe size with fixed steel flanges.
4. Suitable for operating pressure with 4:1 minimum safety factor.
5. Length as shown on Drawings.

1. Type BSS MII
2. Type MFP VMCI
3. Or approved equal product from manufacturers in Article 2.6.

2.5 SEISMIC RESTRAINTS

A. General

1. Provide restraints capable of safely accepting 1.0 "G" external forces without failure, or 1.5 "G" for life safety equipment to maintain equipment, piping, duct and fan powered boxes in a captive position. Restraints must not short circuit vibration isolation systems or transmit objectionable vibration or noise.
2. Submit calculations by a licensed Structural or Civil Engineer substantiating that all equipment mountings and foundations and their seismic restraints can safely accept external forces of 1.0g load for all rigidly and resiliently supported equipment, piping, and ductwork (1.5g load for all life safety equipment) without failure and permanent displacement. Restrain all resiliently mounted piping and ductwork with cable sway bracing by Mason Industries, or approved equal product from manufacturers in Article 2.6.

B. Seismic Restraint, Type I

1. Comply with general characteristics of spring isolators.
2. Provide vertical restraints that are capable of supporting equipment at fixed elevation during equipment erection.
3. Incorporate seismic snubbing restraint in all directions at specified acceleration loadings.
4. System to be field bolted to structure with minimum capability to withstand external forces of 1.5g.

Mason Type SSLF or approved equal product from manufacturers in Article 2.6.

C. Seismic Restraint, Type II

1. Each corner or side seismic restraint shall incorporate minimum 2" thick pad limit stops. Restraints shall be made of plate, structural members or square metal tubing in a welded assembly, incorporating resilient pads. Angle bumpers are not acceptable. System to be field bolted to deck with 1.5g acceleration capacity.
2. Seismic spring mountings are described above are an acceptable alternative providing all seismic loading requirements are met.

Mason Industries Type Z-1011, Type Z-122, or approved equal product from manufacturers in Article 2.6.

2.6 ACCEPTABLE MANUFACTURERS

- A. Mason Industries, Inc. (MI)
- B. Vibration Mountings & Controls, Inc. (VMCI)
- C. Peabody Engineering (PE)
- D. Korfund Dynamics Corp. (KDC)
- E. Amber-Booth (AB)
- F. Vibration Eliminator Co. (VEC)
- G. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Install in accordance with manufacturer's written instructions. Vibration isolators must not cause any change of position of equipment or piping resulting in piping stresses or misalignment.
- B. Isolate mechanical equipment from the building structure by means of noise and vibration isolators as scheduled on the Drawings and in these specifications.
- C. Piping and ductwork to be isolated must pass freely through walls and floors without rigid connections. Maintain 3/4 inch to 1 1/4 inch clearance around outside surfaces of piping or ductwork at penetration points. Pack this clearance space tightly with fiberglass, and caulk airtight after installation of piping or ductwork.
- D. Make no rigid connections between equipment and building structure that degrades the noise and vibration isolation system specified herein.
- E. Loop electrical circuit connections to isolated equipment to allow free motion.
- F. Bring to the Engineer's attention prior to installation any conflicts with other trades which will result in unavoidable rigid contact with equipment or piping as described herein, due to inadequate space or other unforeseen conditions. Corrective work necessitated by conflicts after installation will be at the responsible contractor's expense.

- G. Support vertical piping loads, including water strainers, and valves between pump base elbow supports and the suction and discharge header piping by means of the pump base spring isolators without stress or strain to the pump housing.
- H. Do not install any equipment, piping or conduit which makes rigid contact with the "building" unless permitted in this Specification. Building includes, but is not limited to, slabs, beams, columns, studs and walls.
- I. Coordinate work with other trades to avoid rigid contact with the building. Inform other trades following work, such as plastering or electrical, to avoid any contact which would reduce the vibration isolation.

3.2 EQUIPMENT ISOLATORS

- A. Mount floor mounted equipment on 4" high concrete housekeeping pads over complete floor area of equipment. Mount vibration isolating devices and related inertia blocks on concrete pad. Key housekeeping pads with hair pins, as required, to be integral with structural slab. Provide approved seismic restraint anchor plates flush with top of housekeeping pad.
- B. Support each fan and motor assembly on a single structural steel frame. Provide flexible duct connections at inlet and discharge of fans.
- C. Provide brackets to accommodate the isolator. Manufacturer to specify the vertical position and size of the bracket.
- D. Maintain a minimum operating clearance between the equipment frame on rigid steel base frame and the housekeeping pad of 1 inch. Maintain a minimum operating clearance between concrete inertia and base and housekeeping pad or floor of 2 inches.
- E. Temporarily support the structural steel or concrete inertia base with blocks or shims, as appropriate, prior to the installation of the machine or isolators.
- F. Install the isolators without raising the machine and frame assembly.
- G. Adjust the isolator after the entire installation is complete and under full operational load so that the load is transferred from the blocks to the isolator. When all isolators are properly adjusted, the blocks or shims will be barely free and shall be removed.
- H. Verify that all insulated isolator and mounting systems permit equipment motion in all directions. Adjust or provide additional resilient restraints to flexibly limit equipment start-up lateral motion to ½ inch.
- I. Prior to start-up, clean out all foreign matter between bases and equipment. Verify that there are no isolation short circuits in the base or isolators.

3.3 ADDITIONAL REQUIREMENTS

- A. Diagonal thrust restraint shall be as described for Type C hanger with the same deflection as specified for the spring mountings. The spring element shall be designed so it can be pre-set for thrust and adjusted to allow for a maximum of ¼" movement at start and stop. Diagonal restraints shall be attached at the centerline of thrust. Restraint shall be Mason Type WB, or an approved product from manufacturers in Article 2.6.
- B. All piping and ductwork to be isolated shall freely pass through walls and floors without rigid connections. Penetration points shall be sleeved or otherwise formed to allow passage of piping or ductwork, and maintain ¾" to 1¼" clearance around the outside surfaces. This clearance

space shall be tightly packed with fiberglass, and caulked airtight after installation of piping or ductwork.

- C. All HVAC piping vertical risers larger than 2" in diameter shall be isolated from the building structure by means of noise and vibration isolation guides and supports.
- D. Isolators shall be installed with the isolator hanger box attached to, or hung as close as possible to, the structure. Hanger rods shall be aligned to clear the hanger box.
- E. Isolators shall be suspended from substantial structural members, not from slab diaphragm unless specifically permitted.
- F. Structural steel for cooling tower or other equipment must support the equipment without excessive deflection. The structural steel support shall not be resonant with the isolation system resonant frequencies or the driving frequencies of the supported equipment.

3.4 PIPING AND ENGINE EXHAUST ISOLATORS

- A. All piping and engine exhaust, except fire standpipe systems, are included under this Section.
- B. Installation:
 - 1. Isolate piping, boiler breeching and engine exhaust outside of shafts as follows: All water, steam and glycol piping, boiler breeching and engine exhaust in machine rooms. Piping where exposed on roof. Water piping, boiler breeching and engine exhaust within 50 ft., or 100 diameters if greater than 50 ft. from connected rotating equipment and pressure reducing stations. All other piping shall be rigidly supported and provided with approved seismic restraints to maintain the piping in a captive position without excessive motion.
 - 2. All piping 2" and over located in mechanical equipment rooms, and for a minimum of fifty (50) feet or 100 pipe diameters, whichever is greater, from connection to vibrating mechanical or electrical equipment, shall be isolated from the building structure by means of noise and vibration isolation hangers, Type F.
 - 3. Horizontal suspended pipe 2" and smaller shall be suspended by Type E isolator with a minimum 2" deflection. Water pipe larger than 2" shall be supported by Type F isolator with a minimum 1", or same static deflection as isolated equipment to which pipe connects, whichever is greater.
 - 4. Horizontal pipe floor supported at slab shall be supported via Type B, with a minimum static deflection of 1" or same deflection as isolated equipment to which pipe connects, whichever is the greater.
 - 5. Vertical riser pipe supports shall utilize Type H.
 - 6. Vertical riser guides, if required, shall avoid direct contact of piping with building.
 - 7. Pipe anchors, where required, shall utilize resilient pipe anchors, Mason Industries Type ADA, or equivalent, to avoid direct contact of piping with building.
 - 8. Pipe sway braces, where required, shall utilize two (2) neoprene elements (Type G or H to accommodate tension and compression forces).
 - 9. Pipe extension and alignment connectors: Provide connectors at riser takeoffs, cooling and heating coils, and elsewhere as required, to accommodate thermal expansion and misalignment.
 - 10. Adjust, as required, all isolators to eliminate all contact of the isolated rod with the hanger rod box retainer or short circuiting of the spring.

3.5 GENERAL SEISMIC RESTRAINT REQUIREMENTS

- A. All equipment whether isolated or not shall be bolted to structure to allow for minimum 1.0g of acceleration (1.5g for life safety equipment). Bolt points and diameter of inserts shall be submitted and verified as part of the contractor's submission for each piece of equipment and stamped and sealed by a civil or structural engineer.

B. Seismic restraints are not required for the following:

1. Gas piping less than 1" internal diameter.
2. Piping in boiler and MER room that is less than 1¼" internal diameter.
3. All other piping and electrical conduit less than 2½" internal diameter.
4. All rectangular ducts less than 6 sq. ft. in cross sectional area.
5. All round ducts less than 28" in diameter.
6. All piping suspended by individual hangers 12" in length or less from the point of the attachment to the duct to the bottom of the support for the hanger.
7. All ducts suspended by hangers 12" or less in length from the point of the attachment to the duct to the bottom of the support for the hanger.

C. For overhead supported equipment, overstress of the building structure must not occur. Bracing may occur from:

1. flanges of structural beams;
2. upper or lower truss chords in bar joist construction at the panel points;
3. cast-in-place inserts or drilled and shielded inserts in concrete structures.

D. Each seismic restraint and snubbing device shall be installed after equipment is installed and fully operational. Each isolation mounting incorporating seismic restraint shall be adjusted to provide the minimum operating clearance in all directions to permit the operation of the equipment without objectional noise or vibration to any part of the building structure. The operating clearance for equipment seismic restraints shall not be greater than ¼" (6mm). Seismic restraints must not result in short-circuiting of isolated equipment.

3.6 INSPECTION

- A. On completion of installation of all vibration isolation and seismic restraint devices herein specified, the local representative of the isolation materials manufacturer shall inspect the complete system and report in writing any installation errors, improperly selected isolation or restraint devices, or other faults that could affect the performance of the system. Contractor shall submit a report to the Commissioner, including the manufacturer's representative's final report, indicating all isolation reported as properly installed or requiring correction, and include a report by the Contractor on steps taken to properly complete the isolation work.

END OF SECTION 23 05 48

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SECTION 23 05 53 – SYSTEMS IDENTIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide systems identification in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Valve Tags.
- B. Piping Identification.
- C. Equipment Identification.
- D. Duct Identification.
- E. Charts and Schedules.

1.3 SUBMITTALS

- A. Shop Drawings: Submit valve tag chart; pipe, duct and equipment labels, paint and color chart.
- B. Product Data: Manufacturer's latest published data for materials, equipment and installation, including samples of valve tags, equipment identification and piping identification, showing size of lettering.
- C. Maintenance Manuals: Provide valve tag charts for inclusion in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Piping identification to be in accordance with ANSI A 13.1 - 1996 (latest edition) as to sizes, color, lettering and background color.

PART 2 - PRODUCTS

2.1 VALVE TAGS

- A. Use tags 2 inch minimum diameter, fabricated of brass, stainless steel, aluminum or shatterproof plastic. Attach tags with chain, S-hook or split ring as appropriate.

2.2 PIPING IDENTIFICATION

- A. Provide color coded bands for all piping systems per ANSI-A 13.1-1996.
- B. Adhesive bands to be B350, Perma Code Film markers for indoor use and Quick-Apply mechanically affixed markers for outdoors use, by W.H. Brandy Co, or approved equal product by the manufacturers in Article 2.6-F.

2.3 EQUIPMENT IDENTIFICATION

- A. Identify mechanical equipment by means of nameplates permanently attached to the equipment. Provide black surface, white core laminated bakelite with engraved letters. Minimum size plates 3" long by 1" wide with white letters 3/8" high. Fan powered terminals do not require nameplates.
- B. Identification of Automatic Controls to be as per Section 23 09 23.

2.4 DUCT IDENTIFICATION

- A. Stencil system number and service (supply, return, exhaust) onto ducts at strategic locations. Provide arrows to show direction of flow.

2.5 CHARTS AND SCHEDULES

- A. Provide two diagrammatic charts of all piping systems showing location, numbers and types of all valves, framed for mounting. Legend to show service (condenser water, etc.) and valve number. Assign numbers by floor.

2.6 ACCEPTABLE MANUFACTURERS

- A. W.H. Brady
- B. Seton
- C. Marking Services Inc.
- D. Metalcraft Inc.
- E. Craftmark Inc.
- F. Or Approved Equal

PART 3 - EXECUTION

3.1 PIPING SYSTEMS

- A. Identify all piping systems with color coded bands per ANSI A13.1-1996, sharply contrasting with background. Locate bands near strategic points, such as valves, items of equipment, changes in direction, wall penetrations, capped stub out for future connection and every 40 feet of straight runs. If necessary, paint a strip background of black or white to obtain contrast.
- B. Each set of bands to consist of one (1) band on which the name of the service is printed in black letters not less than 1½" high, and two (2) bands on which is printed a black directional arrow located on each side of legend. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- C. All valves shall be properly tagged.
- D. Provide three schedules of all valves showing number, size, type and service of each valve, suitable for use with three ring binder. Provide separate list for each system.

- E. Drain piping serving mechanical equipment items for which the drain discharge is not visible from the equipment shall be marked in accordance with ANSI 13.1-1996 near the point of discharge indicating the item of equipment served.

3.2 EQUIPMENT

- A. Attach nameplates in a permanent manner in a location that will be clearly visible after installation is complete.
- B. Mask all labels prior to field painting of equipment. Labels that are painted over will be replaced by Contractor at no cost to the City of New York.

3.3 DUCTWORK

- A. Stenciling to be done after insulation and other duct coverings are completed.
- B. Systems on which duct identification has been covered or is otherwise not visible will not be accepted.

3.4 CHARTS & SCHEDULES

- A. Prepare valve charts in a framed mounting behind a clear covering, such as glass, for protection.
- B. All identifying numbers will correspond to those numbers as shown on Contract Documents, such as riser numbers, equipment numbering, piping and duct symbols, etc.

END OF SECTION 23 05 53

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
SYSTEMS IDENTIFICATION - 23 05 53 - 4

SECTION 23 05 93 – TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide testing, adjustment and balancing for all water and air systems in accordance with the Contract Documents.

1.2 SUBMITTALS

- A. Submit the following at least six (6) months prior to the execution of testing during the shop drawing phase:

1. Complete brochure of proposed independent certified balancing firm, listing previous installations successfully balanced; length of time in business, names and qualifications of employees who will be assigned to the project, and list of instruments, equipment and elapsed time schedule to be used on the project.
2. Procedures and recording forms for testing and adjusting each system and each item of equipment.
3. Documentation of instrumentation calibration including date of calibration.
4. Complete test and balancing plan listing all TAB procedures. For air and water systems the test and balancing plan submitted must be customized and reflect the actual systems within the project.

- B. Submit the following within two (2) weeks of completion of testing and adjusting.

1. Submit six (6) certified copies of each complete testing and adjustment report to the Engineer for review and send two (2) copies of the report to the Commissioner. The Contractor shall submit individual testing and adjustment reports for each individual air distribution system, each return and exhaust system, and each pumping system within two (2) weeks after completion of the testing and adjustment of each system.

- C. Inspection report: List all system deficiencies found.

- D. Submit a statement of compliance or non-compliance with this specification section.

1.3 QUALITY ASSURANCE

- A. Testing

1. SMACNA - 2002 Testing, Adjusting and Balancing.
2. ANSI/ASME B31.9 - 2008; Chapter VI Part 937.
3. ANSI/ASME B31.1 - 2010; Power Piping Code.
4. Local codes.

- B. Balancing

1. AABC 2002 National Standards; Air and Hydronic.
2. NEBB 2005 Edition of the Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems.
3. SMACNA - 2002 Testing, Adjusting and Balancing.

- C. During the progress of the work, make tests as specified herein and as required by authorities having jurisdiction, including local authorities' Inspection Department, City of New York, or

Engineer. Tests shall be conducted by the Mechanical Contractor as part of the work of this Division. Include all qualified personnel, equipment apparatus, and services required to perform the tests.

- D. Calibrate all instruments used for testing and adjusting within a period of six (6) months prior to testing and/or balancing. Certify instrument calibration as specified in Section 23 00 02.

PART 2 - PRODUCTS

2.1 PRESSURE AND TEMPERATURE SENSING TAPS

- A. Provide ½-inch pressure and temperature test plugs on the entering and leaving piping at all equipment and as indicated on the plans in order to complete the required system balancing. Coordinate with the mechanical contractor during the installation phase.

PART 3 - EXECUTION

3.1 TESTING

A. General

1. Provide a complete set of approved mechanical and electrical shop drawings and equipment and product submittals to the balancing contractor.
2. Perform all tests required by Codes, Ordinances, and as specified herein, as well as demonstrations of operation for all equipment. Each final test to be witnessed by the Commissioner or City of New York's designated representative. Give a minimum of seven (7) days written notice before performing tests.
3. Install all temporary and permanent equipment and instruments required for tests, as well as additional thermometer wells, gauge and instrument connections, at no additional cost to the City of New York.
4. Perform preliminary tests and repair all leaks before notifying the Commissioner of final tests.
5. Repair leaks, damage, or defects discovered during or resulting from tests or replace to a like-new condition. Remove leaky pipe joints, ductwork, etc., and replace with acceptable materials. Retest systems repaired.
6. Maintain a log book of all tests, preliminary and final, showing dates, personnel, observers' initials, description of test, and test status. Provide updated log to Commissioner each month throughout the construction period. Initial log submitted to include listing of all anticipated tests.
7. Testing, balancing, and adjusting will not relieve the Contractor of the warranty requirements.
8. Furnish all fuel, water, and electricity required in performing the testing, balancing and adjustment of mechanical systems.
9. Clean all piping and ducts before testing. Refer to spec section 23-25-00.
10. Use calibrated test gauges with at least 4½" diameter dial. Gauge range not to be more than three (3) times test pressure.
11. Provide and demonstrate operation of all test equipment and apparatus required for the complete testing and inspection of all systems at such time and locations as may be directed by the Engineer and/or by the authorities having jurisdiction.
12. When freezing is a hazard, take all precautions necessary to prevent damage. Correct any and all damage that results due to freezing at no expense to the City of New York.
13. All tests shall be successfully completed and approved prior to the application of insulation and prior to the concealment of any portion of the system being tested.

B. Piping

1. Before covering or enclosing piping of various systems, all piping must be tested tight for 4 hours. Start and coordinate testing to be completed by 4:30 PM on the day started. The maximum test pressure not to exceed 500 psig. Tests may be witnessed by the Engineer if he so desires, and pronounced satisfactory before pressure is removed.
2. Equipment must be valved off during the test. Do not pressure test through new equipment if equipment pressure ratings cannot support the test pressure. Drain equipment and piping and protect against freeze-up anytime the ambient temperature is below freezing.
3. Mix water for each hydrostatic test with Nalco 41, or approved equal, to a ratio of fifty (50) gallons of Nalco 41 to 10,000 gallons of water, or a higher concentration if recommended by the chemical manufacturer. At least sixty (60) days prior to the start of hydrostatic leak testing, submit a two (2) foot long length of the typical piping installed on the project to Nalco or another chemical manufacturer acceptable to the Commissioner, to determine the composition of the internal pipe coating. Provide injection pumps, water meters and coupon racks to control and monitor the concentration. After leak testing and a sufficient time period to allow the interior of the piping to be chemically coated to prevent rust formation, drain the piping system until empty.
4. Test piping within conduit prior to encasement of joints.
5. Hydrostatically test water piping at 1.5 times actual maximum working pressure.
6. Refrigerant Piping: Air test at 125% of maximum operating pressure but not exceeding 150 psig for four (4) hours.

C. Ductwork

1. Maximum system leakage shall not exceed 5% of system design capacity. When testing individual segments of a total system, prorate allowable leakage as follows:

$$\text{Maximum Leakage} = \frac{(\text{Surface Area of Test Section})}{(\text{Surface Area of System})} \times (.05) \times (\text{System CFM})$$

- a. Test recording form to include above calculation. When all sections of a system have been tested, submit confirmation that the sum of individual section surface areas is equal to the total system surface area.
2. Pressure tests shall be performed with a test blower. Rig with orifice plate. Test ducts/casings with positive pressure on the discharge side of the system fan and under negative pressure on the suction side of the system fan. Include testing of flexible runouts.
3. During construction, individually test each completed riser, each completed horizontal distribution section and each field erected casing/plenum, as required below.
4. Test ductwork as follows:
 - a. Low Pressure Ductwork (From -2 to +2 inches H₂O inclusive):
 - 1) Exposed or Accessible: Visual and audible check for leaks that can be heard or felt under normal operating conditions.
 - 2) Concealed (i.e., within shafts and above sheetrock ceilings): Pressure test at 2 inches H₂O (pos. or neg. as required).
5. Medium Pressure Ductwork (Below -2 inches and above +2 inches H₂O): Pressure test at system pressure classification.

D. Equipment and Systems

1. Take vibration and alignment field measurements on every pump, fan and chiller over 1 HP. Readings shall include shaft alignment, equipment vibration, bearing housing vibration and foundation vibration. Building structure vibration shall be tested when directed by the Engineer. Readings shall be made using portable IRD (or as approved) equipment capable of filtering out various unwanted frequencies. Maximum vibration at any point listed above, or where specified, shall not exceed 2 mils on air handling units and individual fans, and 2 mils on pumps, unless otherwise specified. Equipment manufacturers shall certify in writing that the field readings, which do not exceed the maximum specified, are acceptable to them.
2. Test each water chilling unit for refrigerant and air leaks at least two times; approximately six months after startup and at the end of the warranty period. The Contractor shall certify the condition of the refrigeration system in writing after each test. Seal any leaks detected and repeat the above test period. Use soap suds and Halide torch or electronic refrigerant detector for leak detection. Replace refrigerant and oil lost during warranty period at no cost to the City of New York.
3. Take sound level readings at twelve (12) locations in the building as selected by the Engineer. Take the readings on an Octave Band Analyzer in a manner acceptable to the Commissioner. Submit the test equipment data and reporting forms to the Engineer for review at least three (3) months prior to the field testing. In order to reduce the ambient noise level, take the readings at night. Perform all tests in the presence of the Commissioner, Project Acoustical Consultant, and/or the Engineer, if they so desire.
4. When each mechanical system is complete and functional, prove the capacity and performance of each item of equipment (i.e., fans, pumps, chillers, cooling towers, boilers, heat exchangers, etc.). Operate each item of equipment for a minimum of four (4) hours and record all associated operating data every 15 minutes (i.e., temperatures, flows, pressures, amps, volts, etc.). Verify all integral and external equipment controls and safeties are in proper working order. Complete system testing and demonstration to be done for both normal and emergency modes of operation. City of New York or Commissioner, including Commissioning Agent, may witness final tests.
5. Assist Controls Contractor in demonstrating to City of New York or Commissioner, the proper operation of each control, monitor and alarm function of the Building Management System, and/or control system, along with all software routines. These functions and routines will be demonstrated from the front end and local panels under both normal and emergency power. Proper operation of battery back-up and downloading of software from the front end to the remote microprocessor panels will be verified. Coordinate with Controls Contractor all final TAB readings to be incorporated into the Building Management System.
6. Demonstrate to City of New York or Commissioner, the proper operation of each control, monitor and alarm function of the control system, along with all software routines. Demonstrate these functions and routines from the front end and local panels under both normal and emergency power. Verify proper operation of battery back-up and downloading of software from the front end to the remote microprocessor panels.

3.2 ADJUSTMENT

A. General

1. Prior to start of air balancing, take traverse readings at all connections to building systems with all downstream dampers and VAV devices in fully open position and report results to Commissioner. Provide assistance if air quantities are below that shown on drawings.
2. Prior to start of water balancing, take ultrasonic flow readings at all connections to building systems with all downstream valves in full flow position and report results to Commissioner. Provide assistance if water quantities are below that shown on drawings.

3. After the entire installation has been completed, make required adjustments to balance valves, air vents, automatic controls, pumps, air dampers, VAV boxes, air distribution devices, pressure reducing valves, fans, sheaves, etc., until performance requirements are met. Make these adjustments with equipment operating. In addition, repeat these adjustments for each of the remaining three seasons of the year. During such periods of adjustment prior to the date of acceptance of the mechanical systems, operate equipment.
4. Permanently mark the balanced position of each balancing valve and damper on the pipe or duct or insulation.

B. Water Balancing

1. Before any hydronic balancing work is done, install clean strainers, check proper pump rotation, proper control valve installation and operation. Verify that each system is adequately bled and vented, proper system static pressure is available to assure a full system, flow meter and check valve is properly installed. Maintain throttling devices and control valves open at this time as required and appropriate.
2. After piping systems have been installed, tested, cleaned and flushed, complete with all pumps, piping, valves, coils, and other items as herein specified, make adjustments as required to deliver the water volumes at each coil and piece of equipment to within 5% of design flow as shown on the Drawings, or as required to properly balance the load throughout the conditioned areas. During balancing set control for full-flow through coils. Set automatic throttling valves in the full-open position. Close the bypass port on automatic 3-way valves. Confirm proper differential pressure settings at system by-pass station.
3. Each air handling unit with multiple coils shall have the flow through each coil balanced. Make adjustments in water volumes in a manner satisfactory to the Engineer. Submit detailed balancing procedure and recording forms for the Engineer's review months prior to commencing any water balancing work.
4. After water flow is adjusted, and with the temperature controls set to produce design cooling, measure and record all data necessary to compile a complete report to demonstrate the acceptability of the various mechanical systems.
5. Record the following design requirements for pumps and pump motors from the design drawings and reviewed shop drawings:
 - a. Manufacturer, model and size.
 - b. Water quantity - gallons per minute.
 - c. Total head - feet of water.
 - d. Pump speed - revolutions per minute.
 - e. Impeller size.
 - f. Net positive suction head.
 - g. Motor horsepower and brake horsepower.
 - h. Volts, hertz, amperes and service factor at design conditions.
6. Record the following data from pumps and pump motors installed at the project:
 - a. Manufacturer, model and size.
 - b. Impeller size.
 - c. Motor horsepower, service factor and revolutions per minute.
 - d. Volts, hertz and full load amperes.
 - e. Motor starter and heater size.
 - f. Equipment location.
7. Record the following data for pumps and pump motors installed at the project:
 - a. Pump speed - revolutions per minute.

- b. Total head at shutoff or dead-end discharge feet of water. (Plot this value on pump curve as a verification of impeller size.)
 - c. Suction, discharge and total head at final adjusted flow - in feet of water.
 - d. Calculate brake horsepower and show on pump curve.
 - e. Motor amperage and voltage on each phase at operating conditions.
8. Adjust flow through equipment and coils by means of pressure drop. Obtain curves from the various manufacturers indicating the relationship between flow and pressure drop through the coils and equipment. Take readings on calibrated test gauges.
 9. For orifice plates record the pipe size, orifice size, flow factor, required differential pressure, final differential pressure, and calculated final flow quantity.
 10. For venturi type, pitot tube, or other flow measuring devices, record the pipe size, manufacturer and size of device, and the direct reading of the differential pressure, and calculated final flow.
 11. Upon completion of the water balance, reconcile the total heat transfer through all coils by recording the entering and leaving water temperatures and the entering and leaving air dry bulb and wet bulb temperatures. Adjust differential bypasses for the same pressure drop on full bypass as on full flow.
 12. Do not perform adjustments until the entire system has been pressure tested, flushed and cleaned.
 13. In conjunction with pump manufacturer for multiple pump, pumping systems, construct and submit system curves indicating operating point with one pump operating, two pumps operating, three pumps operating, etc.
 14. Record all system pressure and temperature readings.

C. Air Balancing

1. Adjust all air systems by a certified balancing contractor acceptable to the Commissioner and Engineer.
2. Operate fan systems for as long a time as will be necessary to test air flow from openings, make necessary damper and other adjustments until even distribution is obtained, throughout the various systems, with the air quantities required at each outlet or inlet as shown on the Drawings. Make noise level measurements for the operation of mechanical equipment selected by the Engineer in order to determine if the equipment produces excessive noise in occupied areas of the building.
3. Before any air balance work is done, test the system for duct leakage, install clean filters, check for correct fan rotation and equipment vibration, check automatic dampers for proper operation, and verify that all fire dampers are open.
4. Fans to be adjusted to deliver above system requirements to compensate for duct leakage.
5. Preliminary adjustment may be made prior to completion of systems; however, final balancing must be done with all systems completely installed and operating, including all air outlets and return grilles.
6. Record the pressure drop across the filters in air systems prior to balancing. Systems to be adjusted with clean filters.
7. Traverse main supply air ducts, using a pitot tube and manometer. Calibrate the manometer to read two (2) significant figures in all velocity pressure ranges. A main duct is defined as any of the following:
 - a. A duct serving five (5) or more outlets.
 - b. A duct serving two (2) or more branch ducts.
 - c. A duct serving a heating coil.
 - d. A zone duct from a VAV unit.
 - e. A duct emanating from a fan discharge or plenum and terminating at one or more outlets.
 - f. All supply and exhaust risers.

8. The intent of this operation is to measure by traverse the total air quantity supplied by the fan and to verify the distribution of air to zones.
9. Submit data in support of all supply fan deliveries by the following four (4) methods:
 - a. By summation of the air quantity readings at outlets.
 - b. By duct traverses of main supply ducts.
 - c. By rotating vane traverse across a filter or coil bank.
 - d. By plotting revolutions per minute and static pressure readings on the fan curve. Air density corrections must be indicated.
10. For return air and exhaust fans, the second and third methods listed above (b. & c.) can be omitted.
11. Inspect fan scrolls and remove objects or debris. Inspect coils and remove debris or obstructions. Verify that all fire dampers are open and control dampers are in their proper position.
12. Record the following design requirements for fans and fan motors from the design drawings and reviewed shop drawings:
 - a. Manufacturer, model and size.
 - b. Air quantities - cubic feet per minute.
 - c. Approximate fan speed - revolutions per minute.
 - d. Fan static pressure (total or external) - inches of water.
 - e. Outlet velocity - feet per minute.
 - f. Fan brake horsepower.
 - g. Motor horsepower.
 - h. Volts, hertz, amperes and service factor at design conditions.
13. Record the following data from fans and fan motors installed at the project:
 - a. Manufacturer, model and size.
 - b. Motor horsepower, service factor and revolutions per minute.
 - c. Volts, hertz, full load amperes and service factor.
 - d. Motor starter and heater size.
 - e. Equipment location.
14. Completely adjust fans and duct systems by the adjustment of sheaves, dampers, and other volume and diverting control devices, to obtain the air quantities indicated in the Contract Documents. Integral dampers in terminal outlets and inlets are not to be used for adjustment of duct branches. Adjust outside air and return air modulating dampers to admit the specified quantities of air under all cycles of operation. Adjust final air quantities within 5% of the design requirements. Balance air outlets with air pattern as shown on the Drawings.
15. Record the following test data for fans and fan motors installed at the project at final balanced conditions:
 - a. Fan speed - revolutions per minute.
 - b. Fan suction, discharge and total static pressure (external or total) - inches of water.
 - c. Static pressure drops across filters, dampers, coils, washers and eliminators in the supply fan casings in inches of water.
 - d. Motor operating amperes and voltage per phase at operating conditions.
 - e. Fan cubic feet per minute as required above.
 - f. Calculated brake horsepower.
16. Prepare single line diagrams of duct systems indicating terminal outlets identified by number. List on data sheets all such outlets denoted by the same numbers, including the outlet size, "K" factor, location, cubic feet per minute and jet velocity. Submit this data for supply, return and exhaust air systems.

17. Balance and adjust supply air systems as follows:
 - a. Balance and adjust supply air systems installed in finished areas of the building (except for areas with inaccessible ceiling construction) as follows:
 - 1) After duct systems have been installed complete with all grilles, dampers, ducts, coils, automatic temperature controls, and other items hereinafter specified, make the adjustments to the air handling units and all outlets as required to deliver the volume of air within 5% of design flow as shown on the Drawings with design cold duct temperatures. After the finished area is occupied, readjust the air volumes if required, to properly balance the cooling and heating loads throughout the conditioned areas.
 - b. Balance and adjust completed supply air systems installed in areas with inaccessible ceilings as follows:
 - 1) After duct systems have been installed complete with all dampers, ducts, coils, and other items hereinafter specified, except for final connection to grille or air outlet, and prior to inaccessible ceiling installation, make adjustments, as required, to deliver the volume of air at each interior and perimeter air tap proportionally within 5% of design flow as shown on the Drawings.
 - 2) After each duct system has been adjusted, securely lock each manual damper, splitter, spin-in damper, etc., with sheetmetal screws prior to installation of ceiling.
 - 3) Submit balancing reports to the Engineer for review and comment as specified hereinafter, prior to the installation of the inaccessible ceiling. Do not conceal duct system prior to the receipt of an air balance report which has been accepted by the Commissioner for the system.
 - 4) After ceiling installation, install each air outlet with air patterns as shown on the Drawings. Make final air balance adjustment by increasing or decreasing the air handling fan powered terminal unit fan rpm.
18. The air balancing subcontractor shall visit the project site as often as necessary prior to the start of balancing procedures to verify that the duct systems have been properly installed complete with all grilles, dampers, ducts, coils, etc., and that the return air paths through walls, grilles, lighting fixtures, and slot diffusers are completely open and unobstructed. The air balancing subcontractor shall also verify that adequate access to equipment and balancing devices has been provided and that the temporary plastic coverings on the lighting fixtures used for supplying conditioned air have been removed. The air balancing subcontractor shall submit a written report to the Engineer and Commissioner within one (1) week after each visit.
19. For balancing air outlets, use a flow hood for the air balance. The instrument to be complete with a flow hood kit complete with flow hood tops specifically designed to accurately measure the air outlets specified for this project. The flow hood's accuracy and the instrument calibration for measuring the air flow from the air distribution device specified for the project must be verified in an independent testing laboratory acceptable to the Commissioner and Engineer.
20. For garage supply and exhaust, all smoke supply and exhaust, toilet exhaust, and other exhaust air systems have been installed complete with all ductwork, grilles, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver the volumes of air at each inlet or outlet within 10% of design flow.
21. After all miscellaneous ventilation systems have been installed complete with all duct, grilles, louvers, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver to volumes of air, or differential static pressures in the case of the pressurization fans, at each air inlet and/or outlet within 10% of design flow.

3.3 FINAL REPORT

- A. If the work is completed during the heating season, perform the final tests of cooling equipment the following summer; if completed during the summer, perform test on heating system the following winter.
- B. After each seasonal adjustment is made, prepare a detailed report and submit to the Engineer for approval.
- C. Demonstrate to the Engineer and Commissioner, prior to acceptance by the City of New York, that all systems and/or equipment have been balanced and adjusted properly, and that the system and/or equipment is in compliance with the Contract Documents.

END OF SECTION 23 05 93

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SECTION 23 07 00 – INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide thermal insulation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping Insulation.
- B. Duct Insulation.

1.3 SUBMITTALS

- A. Shop Drawings: Submit list of insulation to be used for each service.
- B. Product Data: Manufacturer's latest published data for materials, "R" values and installation.
- C. Provide BS&A or MEA numbers.

1.4 QUALITY ASSURANCE

- A. All insulating materials to be free of asbestos.
- B. Comply with all requirements of ASTM for thermal and moisture transmission.
- C. Provide insulation (including insulation jacket or facing and adhesives used to adhere the facing or jacket to the insulation) with non-combustible material meeting Code requirements and fire and smoke hazard ratings as tested by procedure ASTM E-84, National Fire Protection Association 255, and UL 723, not exceeding flame spread 25 and smoke developed 50. Adhesives, mastics, cements, etc. shall not exceed the same component ratings. Foam glass insulation to be manufactured in accordance with ASTM C552.
- D. All insulating products and coverings to be U.L. listed.
- E. All insulation thicknesses shall be at least the minimum thickness required by AHRAE 90.1 – 2001 for the respective services, materials and project location.
- F. Insulation materials, including all weather and vapor barrier materials, closures, hangers, supports, fitting covers, and other accessories, shall be furnished and installed in strict accordance with project drawings, plans, specifications and manufacturer's requirements.
- G. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers who are regularly engaged in commercial insulation work.

1.5 DELIVERY AND STORAGE OF MATERIALS

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a safe, dry place with appropriate labels and/or other product identification.
- B. The contractor shall use whatever means are necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that

has become damaged in any way. The contractor shall also use all means necessary to protect work and materials installed by other trades.

- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material, and shall remove it from the job site.

PART 2 - PRODUCTS

2.1 PIPE INSULATION

A. Materials

1. When the temperature of a fluid falls within the following temperature ranges at any time during the system cycle, provide the insulation thickness indicated.

Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger
Hot Water and glycol	141 to 200	Glass Fiber	1-1/2	1-1/2	2	2	2
Hot Water and glycol	105 to 140	Glass Fiber	1	1	1	1-1/2	1-1/2
Water, glycol, brine	40 to 60	Glass Fiber	1/2	1	1	1	1
Chilled water, glycol, brine	Below 40	Glass Fiber	1	1-1/2	1-1/2	1-1/2	1-1/2
Condensate drains above hung ceilings and in shafts	-	Glass Fiber	1/2	1/2	1/2	1	1
Refrigerant	Below 40	Glass Fiber	1	1-1/2	1-1/2	--	--
Domestic Fresh Water	-	Glass Fiber	1	1	1	1	1
Refrigerant hot gas (exposed)	Above 100	Glass fiber	1/2	1/2	1/2	--	--
Water, Brine Glycol	60 and below	Foam Glass	1	1	1	1 1/2	2

- B. Fiberglass Density: Fiberglass pipe insulation in equipment rooms and/or where exposed to be of the sectional type having 6 lbs./cu. ft. density. Other fiberglass insulation to be of the 1-piece type with at least 4 lbs./cu. ft. density.

- C. Thermal conductivity of fiberglass to be .23 BTU/hr/inch/sq.ft./°F/at a mean temperature of 75°F.
- D. Foam glass density to be 8 lbs/cu. ft.
- E. Thermal conductivity of calcium silicate to be .32 BTU/hr/inch/sq.ft./°F/at a mean temperature of 100°F.
- F. Thermal conductivity of foam glass to be .32 BTU-in/hr.ft.2 °F at a mean temperature of 75°F.

G. Insulation Jackets

1. Concealed pipes carrying fluids 105°F and above. Factory applied white fire retardant jacket, (ASJ), stapled and banded. Pipes banded with not less than 3 bands per section.
2. Exposed pipes carrying fluids 105°F and above. Factory applied white fire retardant jacket, (ASJ), with butt strips stapled and banded. Pipes banded with not less than 3 bands per section.
3. Pipes carrying fluids 60°F and below up to 14 inches. Factory applied white fire retardant vapor barrier jacket with self-sealing lap (ASJ) and butt strip. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 or FB 30-35).
4. Pipes carrying fluids 60°F and below over 14 inches. Factory applied white fire retardant vapor barrier jacket (ASJ) sealed with I.C. 215 (or BF 82-07) adhesive. All circumferential joints wrapped with a 3 inch wide strip of white fire retardant jacket adhered with I.C. 215 (or BF 72-07) adhesive. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 (or BF 30-35).
5. Finish calcium silicate with glass cloth adhered with I.C. 501 or BF 30-36.
6. Vapor barrier jacket permeability to be 0.02 perms.
7. Jacket Puncture Resistance to be 50 units (Beach).
8. When multiple layers are required, all inner layer(s) shall be No Wrap.
9. On cold systems, vapor barrier performance is extremely important. All penetrations of the ASJ and exposed ends of insulation shall be sealed with vapor barrier mastic. If humidities in excess of 90% are expected, the ASJ shall be protected with either a mastic coating or a suitable vapor retarding outer jacket. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

H. Fittings, Valves and Flanges

1. Where manufactured, use factory premolded fittings (of the same material and thickness as the pipe insulation) for fittings, flanges and valves.
2. Where premolded insulation fittings are not manufactured, insulate fittings, flanges and valves with mitered segments of the same thickness and density as the adjoining pipe covering.
3. On cold systems, particular care must be given to vapor sealing the fitting cover or finish to the pipe insulation vapor barrier. All valve stems shall be sealed with caulking to allow free movement of the stem but provide a seal against moisture incursion.

I. Piping located outdoors and exposed to the weather shall be insulated as indicated above. The insulation shall then be protected with the following weatherproof finishes:

1. Metal jacketing shall be 0.016" (0.4 mm) minimum aluminum or stainless steel with moisture barrier, secured in accordance with the jacket manufacturer's recommendations. Joints shall be applied so they will shed water and shall be sealed completely.
2. UV resistant PVC jacketing may be applied in lieu of metal jacketing provided jacketing manufacturer's limitations with regard to pipe size, surface temperature, and thermal expansion and contraction are followed.
3. Fittings shall be insulated as prescribed above, jacketed with preformed fitting covers matching outer jacketing used on straight pipe sections, with all joints weather sealed.
4. On outdoor refrigerant lines, the insulation system shall be completely vapor sealed before the weather-resistant jacket is applied. The outdoor jacket shall not comprise the vapor barrier by penetration of fasteners, etc. Vapor stops at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

2.2 DUCTWORK INSULATION

A. Glass Fiber Blanket

1. Glass fiber blanket insulation shall be insulated with 0.75 pcf (12 kg/m³) density, FSK-faced fibrous glass duct wrap insulation having a k-value of .28 Btu•in/(h•ft²•°F).
2. The duct wrap insulation shall consist of a blanket-type insulation composed of wool-type glass fibers firmly bonded with a thermosetting resin. Duct wrap material shall be factory-laminated to a scrim reinforced, foil-kraft (FSK) vapor retarder facing have a 2" (51 mm) stapling flange on one edge.
3. When installed in accordance with recommended installation procedures, duct wrap insulation shall provide installed R-values as follows:

DENSITY	LABELED THICKNESS	INSTALLED R-VALUE
.75# (12 kg/m ³)	1-1/2" (38 mm)	4.2
.75# (12 kg/m ³)	2" (51 mm)	5.6
.75# (12 kg/m ³)	2-1/8" (54 mm)	6.0
.75# (12 kg/m ³)	2-1/4" (57 mm)	6.5
.75# (12 kg/m ³)	2-1/2" (64 mm)	7.0
.75# (12 kg/m ³)	3" (76 mm)	8.5
1.0# (16 kg/m ³)	1-1/2" (38 mm)	4.5
1.0# (16 kg/m ³)	2" (51 mm)	6.1
1.5# (24 kg/m ³)	1-1/2" (38 mm)	4.8
1.5# (24 kg/m ³)	2" (51 mm)	6.4

B. Fiberglass Duct Board

1. Material to be high-density fiberglass duct board with foil kraft laminate facing, reinforced with scrim. Maximum thermal conductivity (K-value) at 75°F (24°C mean temperature to be 0.23 Btu – in/hr. – sq. ft. -°F (0.035 w/m - °C) when tested in accordance with ASTM C518 or ASTM C177.

C. Application

Service	Material	Insulation Thickness (inches)
Heated or Cooled Supply Air Ducts, concealed in unconditioned spaces, including shafts and hung ceilings	Glass Fiber Blanket	1-1/2
Heated or Cooled Supply Air Ducts, in hung ceilings used as Return Air Plenums	Glass Fiber Blanket	3/4
Heated Supply Air Ducts exposed in unheated space	Glass Fiber Board	1-1/2
Cooled Supply Air Ducts exposed in unconditioned space	Glass Fiber Board	1-1/2
Return & Relief Air Ducts from heated or cooled spaces in unconditioned spaces including shafts and hung ceilings.	Glass Fiber Blanket	1
Return and relief air ducts from heated or cooled spaces in exposed locations.	Glass Fiber Rigid Board	1
Outside Air Intake Ducts & Plenums from intake louver to supply system.	Glass Fiber Rigid Board	1-1/2
Unused portion of louvers where blanked off with sheetmetal	Glass Fiber Rigid Board	1-1/2
Exhaust or Relief Air Ducts from automatic louvered damper to discharge at exterior openings	Glass Fiber Rigid Board	1
Boiler Stacks and Breechings	Calcium Silicate Block	4
Microturbine Exhaust	Calcium Silicate Block	2-1/2

- D. Rigid Glass Fiber Board to be six (6) pound per cu. ft. density with factory applied white fire retardant jacket (ASJ). Apply with mechanical fasteners. Seal joints and breaks.
- E. Boiler Stacks and Breechings: Calcium silicate wired over 1 inch high rib lath.
- F. Ventilating systems (which are neither heated nor cooled) supply ducts need not be insulated.

2.3 ACCEPTABLE MANUFACTURERS

A. Insulation

1. Owens-Corning Fiberglass
2. Johns-Manville
3. Armstrong
4. Certain-Teed

5. Knauf
6. Or Approved Equal

B. Adhesives and Sealers

1. Benjamin Foster (H.B. Fuller Co.)
2. Rubatex
3. Minnesota Mining and Mfg. Co. (3M)
4. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION - GENERAL

- A. Perform work in strict accordance with the manufacturer's recommendation and the best practice of the trade and the intent of this specification.
- B. Ensure that insulation is clean, dry, and in good mechanical condition with all factory-applied vapor or weather barriers intact and undamaged. Wet, dirty, or damaged insulation shall not be acceptable for installation.
- C. Apply insulation over clean dry surface, butting sections or surfaces firmly together and finishing as specified.
- D. Seal vapor barriers in a continuous manner throughout against moisture penetration.
- E. Insulation to be continuous through wall, floor and ceiling openings or sleeves. Do not cover any nameplates or identification tags.

3.2 INSULATION OF DUCT WORK AND FITTINGS

- A. No insulation shall be installed until ductwork has been pressure tested or leak tested as specified elsewhere to the satisfaction of the engineer.
- B. Before applying duct wrap, steel metal ducts shall be clean, dry, and tightly sealed at all joints and seams.
- C. All portions of duct designated to receive duct wrap shall be completely covered with duct wrap.
- D. To ensure installed thermal performance, duct wrap shall be cut to "stretch-out" dimensions as follows (P = perimeter of duct in inches/mm):

Labeled Thickness	Average Installed Thkns.	Thickness Calculation To Arrive at Correct Installed Thickness		
		Round Duct	Square Duct	Rectangular Duct
1-1/2" (38 mm)	1.125 (29 mm)	P+ 9.5" (241 mm)	P+ 8.0" (203 mm)	P+ 7.0" (178 mm)
2" (51 mm)	1.5" (38 mm)	P+ 12.0" (305 mm)	P+ 10.0" (254 mm)	P+ 8.0" (203 mm)
2-1/4" (57 mm)	1.69" (43 mm)	P+ 13.5" (343 mm)	P+ 11.5" (292 mm)	P+ 9.0" (229 mm)
2-1/2" (64 mm)	1.88" (48 mm)	P+ 14.5" (368 mm)	P+ 12.5" (318 mm)	P+ 9.5" (241 mm)
3" (75 mm)	2.25" (57 mm)	P+	P+ 14.5" (368 mm)	P+ 11.5" (292 mm)

- E. A 2" (51 mm) piece of insulation shall be removed from the facing at the end of the piece of insulation to form an overlapping stapling and taping flap
- F. Install duct wrap insulation with facing outside so that the stapling flap overlaps the insulation and facing at the other end of the piece of duct wrap. Adjacent sections of duct wrap insulation shall be tightly butted, with the 2" (51 mm) stapling and taping flap overlapping. If ducts are rectangular or square, install so insulation is not excessively compressed at corners. Seams shall be stapled approximately 6" (152 mm) on center, with ½" (13 mm) minimum, steel, outward-clinching, staples.
- G. Where a vapor barrier is required, seams shall be sealed with pressure-sensitive tape matching the insulation facing, either plain foil or fil-scrim-kraft (FSK). Seal all tears, punctures, and other penetrations of the duct wrap facing with tape or mastic to provide a vapor-tight system.
- H. Wherever external duct insulation is specified and internal acoustic treatment of equivalent insulating effect is also required (by Drawings or Specifications) for the same location, the external insulation may be omitted.
- I. Cover ductwork exposed to outdoor conditions, including spaces ventilated with outdoor air, with an additional 2-inch thickness of rigid glass fiber board 6 lbs./cu.ft., faced with factory applied all-service jacket, Johns-Manville Type 817 Spin-glas AP, or as approved.
- J. Apply vaporseal board by mechanical fasteners such as Graham pins and speed washers. Seal joints with an adhesive, as approved and reinforced with a glass cloth membrane over vinyl mastic, or self-sealing matching tape. Butter pinheads with an adhesive, as approved. If vaporseal board is wired, use tin edges to protect the corners of the board. Seal edges and joints.

3.3 PIPING INSULATION

- A. No insulation must be installed at fittings and joints until the piping systems have been hydrostatically tested as specified elsewhere to the satisfaction of the Engineer.
- B. Provide insulation for removable flanges of pipe strainers on cold services with built-up sections of glass fiber pipe covering, arranged to facilitate servicing of the strainer. Complete applications with vaporseals. Vapor barriers to be sealed and continuous through hangers, walls, sleeves, etc. Adhesives and coatings to be as noted herein.
- C. Insulate fittings, flanges, valves, etc. for services where calcium silicate insulation is specified with mineral wool cement of equal thickness to the pipe insulation and finished with glass cloth.
- D. Piping Exposed to Outdoor Conditions, Pipes in Spaces that are not heated and Pipes Subject to Freezing: Cover piping with an additional layer of 2 inches glass fiber insulation of the same finish as specified for the particular service in paragraph 2.1, but not less than 3 inches total thickness. All piping subject to freezing will be insulated with a minimum of 2" fiberglass.
- E. Insulate heat-traced piping as specified for piping exposed to outdoors. Cover with an aluminum jacket, as specified for piping exposed to the outdoors.
- F. Notify Mechanical Contractor of any leaks in pipe or joints. Do not insulate until leaks have been repaired. Replace all insulation dampened by leaks.
- G. Apply prefabricated sectional insulation for straight pipes neatly fitted around the piping, and sealed with adhesive. Apply adhesive to only one side of each joint and not to pipe surface.

- H. Seal all joints with Foster 30-35 or approved equal product from the manufacturers listed in Article 2.3, fire resistant vapor barrier mastic, or approved equal. Where required, oversized pipe sections or board type insulation may be used to fabricate and install insulation around pipe specialties. All void space must be firmly filled with flexible insulation to support oversized pipe insulation.
- I. Maintain the integrity of factory-applied vapor barrier jacketing on all pipe insulation, protecting it against puncture, tears or other damage. All staples used on cold pipe insulation shall be coated with suitable sealant to maintain vapor barrier integrity.
- J. Secure sectional insulation with 0.02" thick by 1/2" wide aluminum bands manufactured by Childers, or Thomas & Betts "TY-RAP" nylon ties, on 24" centers for pipe sizes 2" and larger. Install at least two (2) bands per section of insulation. Or use an approved equal product from the manufacturers listed in in section 2.3.
- K. Insulate cold water ball valves with 3/4" thick flexible elastomeric sheet insulation (ASTM C534) or approved equal as detailed on the Drawings. Finish insulation with two (2) coats of Rubatex 374 coating, or approved equal product from the manufacturers listed in Article 2.3
- L. Insulate cold water vertical riser support clamps.
- M. Insulate and thoroughly vapor seal control valve bodies where the valve actuator penetrates the insulation.
- N. Replace any self-sealing insulation and/or lap that is found to be not sealing properly. Do not use staples to secure the insulation, lap, or coverings.

3.4 FINISHING OF INSULATION

- A. Finish hot service pipe fittings and valve applications with open weave glass mesh adhered with I.C. 501 (or BF 30-35), or approved equal. Vaporseal for cold applications with I.C. 501 (or BF 30-35), or approved equal adhesive with open weave glass mesh laid in while wet with final coat with I.C. 501 (or BF 30-35) adhesive, or approved equal. Or use an approved equal product from the manufacturers listed in in section 2.3, or an approved product by an approved manufacturer.
- B. Overlap glass mesh and outer coat adjacent covering by at least 2 inches. Do not insulate flanges until systems are operational.

3.5 PROTECTION OF INSULATION

- A. Protect pipe covering at hangers, guides, and roller supports with 16 gauge galvanized metal shields or saddles (at least 3 times the insulation diameter in length and 1/3 the insulation circumference in width) on the outside of the insulation and vapor barrier. Hold shields in place with straps. Do not pierce the insulation with hangers. Where glass fiber insulation is used on piping 3 inches and larger, provide half-section of calcium silicate covering of equal thickness at metal shields.
- B. Piping Exposed to Outdoors: Cover insulated piping exposed to outdoors or called for to be weatherproofed, in addition to finishes specified, with an aluminum jacket similar to Johns-Manville "Metal-Lok" or as approved, including all fittings.
- C. Exposed insulated piping in parking garages shall be provided with an aluminum insulation jacket similar to "Johns-Manville" "Metal-Lok."
- D. Exposed insulated piping in mechanical equipment rooms located 8 feet or less above the floor or where subject to traffic shall be provided with an aluminum insulation jacket similar to Johns-Manville "Metal-Lok".

3.6 INSPECTION

- A. Upon completion of installation of duct wrap and before system operation is to commence, visually inspect the system and verify that duct insulation has been correctly installed.
- B. Open all system dampers and turn on fans to purge all scraps and other loose pieces of material from the duct system. Allow for a means of removal of such material from the duct system.
- C. Check the duct system to ensure that there are no air leaks through duct joints.
- D. Fill surface imperfections such as chipped edges, small joints or cracks and voids or holes with insulation material and smooth all such areas with a skim coat of insulating cement.

3.7 SAFETY PRECAUTIONS

- A. Insulation contractor's employees shall be properly protected during installation of all insulation. Protection shall include proper attire when handling and applying insulation materials, and shall include (but not be limited to) disposable dust respirators, gloves, hard hats, and eye protection.
- B. The insulation contractor shall conduct all job site operations in compliance with applicable provisions of the Occupational Safety and Health Act, as well as with all state and/or local safety and health codes and regulations that may apply to the work.

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
INSULATION - 23 07 00 - 10

SECTION 23 08 10 – BASIC COMMISSIONING OF HVAC SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

A. General

1. Work under this contract shall conform under requirements of Division 1, General Requirements, Conditions of the Contract, and Supplementary Conditions. This specification covers commissioning of mechanical systems which are part of this project.
2. Furnish labor and material to accomplish complete HVAC commissioning as specified herein. Complete interim commissioning of HVAC systems during initial season operation and follow-up commissioning of required HVAC systems during additional season operation.

B. Definitions

1. Functional performance testing (FPT): the process of determining the ability of the HVAC system to deliver heating, ventilating, and air-conditioning services in accordance with the design intent.
2. Systems Manual: a composite document that expands the scope of the operation manual and maintenance manual by including the additional information gathered by the commissioning process.
3. Verification: that full range of checks and tests carried out to determine if all components, subsystems, systems, and interfaces between systems operate in accordance with the contract documents. In this context, "operate" includes all modes and sequences of control operation, interlocks and conditional control responses, and specified responses to abnormal or emergency conditions.

C. Purpose

The commissioning is a process and its purpose is:

1. to verify that the systems installation and performance is in accordance with the plans, specifications and design intent.
2. to train the City of New York's operators so that they fully understand the design intent and the operation and maintenance requirements of the equipment.

D. Scope of Work during Construction Phase

1. observe construction, installation, start-up, operation, and testing and balancing.
2. conduct O&M training.

E. Scope of Work during Acceptance Phase

1. verify the accuracy of the final TAB report,
2. verify that the HVAC system complies with the contract documents,
3. identify and document deficiencies,
4. remedy deficiencies and verify,
5. do functional performance testing,
6. identify and document deficiencies,
7. remedy deficiencies and retest,
8. establish an as-built record of the HVAC system performance,

9. complete the as-built records,
10. complete the commissioning report,
11. complete the Systems Manual, and
12. turn over all documents to the City of New York

F. Systems to be Included in Commissioning Process

All HVAC systems, sub-systems, and equipment included in Division 23, and not only limited to the following, shall go through commissioning:

1. New Supplemental Condenser Water System as shown on the contract drawings
2. Air handling/ air distribution systems as shown on the contract drawings.
3. Variable frequency drives
4. Motor control centers
5. DDC/BMCS control systems, hardware, software and documentation
6. Air distribution systems as shown on the contract drawings.

1.2 QUALITY ASSURANCE

A. Reference:

1. ASHRAE Guideline 1.1-2007: The HVAC Commissioning Process
2. ASHRAE Application Handbook – 2007: Chapter 39 – Building Commissioning.
3. ASHRAE Guideline 4-2008: Preparation of Operating and Maintenance Documentation for Building Systems.

1.3 ROLES AND RESPONSIBILITIES

A. Construction Manager or General Contractor

1. Coordinate with City of New York to assign maintenance personnel and schedule them to participate in meetings, training session as follows:
 - a. Construction Phase coordination meeting.
 - b. Maintenance orientation and inspection
 - c. Piping test and flushing verification meetings.
 - d. Procedures meeting for Testing, Adjusting and Balancing.
 - e. City of New York training session.
 - f. Verification demonstrations.
 - g. Final review at acceptance meeting.
2. Provide qualified personnel for videotaping and editing of training sessions.
3. Provide any utilities required for the commissioning process.
4. Prepare the mechanical commissioning program required as part of the Commissioning Specification. Include lists of all contractors for commissioning events by name, firm, and trade specialty.
5. Execute the mechanical commissioning program, through organization of all tests, meetings, demonstrations, training events and performance verifications described in the Contract Documents and the approved HVAC commissioning program. Organizational Responsibilities include preparation of agendas, attendance lists, arrangements for facilities and timely notification to participants for each commissioning event.
6. Review the design documents for their effect on the commissioning process and the final performance of the HVAC system. This includes ensuring that appropriate commissioning guidelines have been followed, and that there are adequate devices included in the design to ensure the ability to properly test, adjust and balance the

systems, and to document the performance of each piece of equipment and each system. Any items required but not shown shall be brought to the attention of the Contractor prior to submittal of shop drawings.

7. Review all submittals (e.g. equipment, piping, automatic controls, and TAB procedures) for their effect on the commissioning process and the final performance of the HVAC system.
8. Schedule the Construction Phase coordination meeting within 90 days of the award of the contract, at some convenient location and at a time suitable to the Contractor. This meeting shall be for the purpose of reviewing the complete mechanical commissioning program and establishing tentative schedules for mechanical system orientation and inspections, O&M submittals, training sessions, system flushing and testing, job completion, test, adjust and balance (TAB) work and verification and functional performance testing.
9. Schedule the initial City of New York training session so that it will be held immediately before the mechanical system orientation and inspection. This session shall be attended by the City of New York's O&M personnel, and the mechanical Contractor
10. Conduct periodic inspections of work in progress to ensure that all systems are installed according to specifications.
11. Receive and review the Operation and Maintenance (O&M) manuals as submitted by the contractor, ensuring that they follow the specified outline and format.
12. Prior to initiating the TAB work, meet with the Commissioner, mechanical Contractor, and TAB Contractor. The TAB Contractor shall outline TAB procedures and get concurrence from the Engineer. Ensure that the TAB Contractor has all forms required for the job database and understands their importance and use.
13. Schedule the O&M training sessions. These training sessions are to be attended by the City of New York, Contractors and equipment suppliers as necessary. The format shall follow the outline in the O&M manuals. This mechanical system orientation and inspection should include hands on training.
14. Upon receipt of notification from the Mechanical Contractor that the mechanical systems have been completed and are operational, the Construction Manager shall proceed to verify the TAB report and operation of the control systems in accordance with the Commissioning Specification.
15. Review as-built drawings for accuracy with respect to installed systems. Review revisions to achieve accuracy.
16. Ensure that the O&M manuals and all other as-built records have been updated to include all modifications made during the construction phase.
17. Assemble the final project documentation which shall include the commissioning report and all as-built records. Submit this documentation to the Engineer for review.

B. Mechanical Commissioner

1. Prepare contract documents incorporating the Commissioning Specification requirements and description of the mechanical system.
2. Attend initial meeting with TAB representative as scheduled by Construction Manager.
3. Review verification and functional performance testing procedures.
4. Review TAB report and verification data sheets for system conformance to contract documents. Issue comments noting deficiencies requiring correction.
5. Review functional performance testing report for deficiencies in meeting the finalized design intent.
6. Review as-built records as required by contract documents and turn them over to the Construction Manager for inclusion in final project documentation.
7. Review and comment on the final commissioning report.

C. Construction Manager

1. Include cost for commissioning requirements in the contract price
2. Construction Manager shall verify completeness of building envelope, perimeter and interior items which affect proper operation and control of HVAC equipment and systems.
3. Include commissioning requirements in the mechanical, electrical, and controls contracts, as well as all other sub-contractors, to ensure cooperation of all parties in the mechanical commissioning program.
4. Ensure acceptable representation, with the means and authority to prepare and coordinate execution of the mechanical commissioning program as described in the contract documents.
5. Issue a statement that TAB work has been completed, and submit the final TAB reports for review.
6. Issue a statement that control systems have been calibrated.
7. Remedy deficiencies identified in verification tests.
8. Evaluate any performance deficiencies identified in the FPT report for non-performance with contract documents.

D. Mechanical Contractor

1. Include cost of commissioning requirements in the contract price.
2. Include requirements for submittal data, O&M data, and training in each purchase order or sub-contract written.
3. Ensure cooperation and participation of specialty sub-contractors such as piping, water treatment, and TAB.
4. Ensure participation of major equipment manufacturers in appropriate training and testing activities.
5. Attend Construction Phase coordination meeting scheduled by the Construction Manager.
6. Assist the Construction Manager in all verification and functional performance tests.
7. Prepare preliminary schedule for mechanical system orientations and inspections, O&M manual submissions, training sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, TAB and task completion for use by the Construction Manager. Update schedule as appropriate throughout the construction period.
8. Attend initial training session.
9. Conduct mechanical system orientation and inspection at the equipment placement completion stage.
10. Update drawings to the record condition to date.
11. Gather O&M data on all equipment, and assemble in binders as required by the Commissioning Specification.
12. Notify the City of New York a minimum of two weeks in advance, so that the witnessing equipment and system start-up and testing can begin.
13. Notify the City of New York a minimum of two weeks in advance of the time for start of the TAB work. Attend the initial TAB meeting for review of the official TAB procedures.
14. Participate in, and schedule vendors and Contractors to participate in the training sessions.
15. Provide a complete set of as-built records to the City of New York.
16. Conduct the Mechanical system orientation and inspection following the initial training session. The Mechanical system orientation and inspection shall be conducted by the mechanical Contractor. The emphasis of this Mechanical system orientation and inspection shall be an observation of the equipment location with respect to accessibility. Prepare minutes of this meeting, with separate summary of deficiency findings. Distribute to attendees and the City of New York.
17. Adequate accessibility for maintenance and component replacement or repair is the Contractor's responsibility.

18. Witness equipment and system start-up and testing. Ensure the results are documented (including a summary of deficiencies), and incorporated in the O&M manuals.
19. Submit detailed verification test procedures and data sheets for review by the Engineer. Submit detailed FPT procedures for review and acceptance by the Engineer.
20. Conduct Verification tests.
21. Submit verification test data for review to the Commissioner for review and acceptance.
22. Provide detailed checklists data sheets to document verification tests.
23. Provide and install calibrated test instrumentation to monitor and record data as necessary.
24. Conduct Functional Performance Tests.
25. Submit functional performance test report for review to the Commissioner.
26. Re-test if performance deficiencies are found, corrected and additional testing is requested.
27. Repeat Functional Performance Tests to accommodate seasonal tests and/or correct any performance deficiencies. Revise and re-submit the commissioning report.
28. Prepare the final commissioning report.

E. Test, Adjust, and Balance Contractor

1. Include cost for commissioning requirements in the contract price.
2. Attend initial commissioning coordination meeting scheduled by the City of New York.
3. Submit the TAB procedures to the Commissioner for review and acceptance.
4. Attend the TAB review meeting scheduled by the City of New York. Be prepared to discuss the procedures that shall be followed in testing, adjusting, and balancing the HVAC system.
5. Participate in training sessions.
6. At the completion of TAB work, and the submittal of the final TAB report, notify the Mechanical Contractor and the Commissioner.
7. Participate in verification of the TAB report, which will consist of repeating any selected measurement contained in the TAB where required by the Engineer for verification or diagnostic purposes.

F. Building Automation System

1. Include cost for commissioning requirements in the contract price.
2. Review design for controllability with respect to selected manufacturers equipment;
 - a. Verify proper hardware specification exists for functional performance required by specification and sequence of operation.
 - b. Verify proper safeties and interlocks are included in design.
 - c. Verify proper sizing of control valves and actuators based on design pressure drops. Verify control valve authority to control coil properly.
 - d. Verify proper sizing of control dampers. Verify damper authority to control air stream. Verify proper damper positioning for mixing to prevent stratification. Verify actuator vs. damper sections for smooth operation.
 - e. Verify proper selection of sensor ranges.
 - f. Clarify all questions of operation.
3. Attend initial commissioning coordination meeting.
4. Provide the following submittals to the Engineer.
 - a. Hardware and software submittals
 - b. Control panel construction shop drawings.
 - c. Narrative description of each control sequence for each piece of equipment controlled.

- d. Diagrams showing all control points, sensor locations, point names, actuators, controllers, and, where necessary, points of access superimposed on diagrams of the physical equipment.
 - e. Logic diagrams showing the logic flow of the system.
 - f. A list of all control points, including analog inputs, analog outputs, digital inputs, and digital outputs. Include the values of all parameters for each system point. Provide a separate list for each stand-alone control unit.
 - g. A complete control language program listing including all software routines employed in operating the control system. Also provide a program write-up, organized in the same manner as the control software. This narrative shall describe the logic flow of the software and the functions of each routine and sub-routine. It should explain individual math or logic operations that are not clear from reading the software listing.
 - h. Hardware operation and maintenance manuals.
 - i. Application software and project applications code manuals.
5. Verify proper installation and performance of controls/BMCS hardware and software provided by others.
 6. Integrate installation and programming schedule with construction and commissioning schedules.
 7. Provide thorough training operating professionals on hardware operations and programming, and the application program for the system.
 8. Demonstrate system performance to Commissioner including all modes of system operation (e.g. normal, abnormal, emergency)
 9. Provide control system technician for use during system verification and functional performance testing.
 10. Provide systems modifications as required.
 11. Provide support and coordination with TAB contractors on all interfaces between their scopes of work. Provide all devices, such as portable operators terminals, for TAB use in completing TAB procedures.
 12. Additional trend logs may be required to facilitate the commissioning process.

G. Equipment Suppliers and Miscellaneous Contractors.

1. Include cost for commissioning requirements in the contract price.
2. Provide submittals, and appropriate O&M manual section(s).
3. Participate in training sessions.
4. Demonstrate performance of equipment as applicable.

1.4 DOCUMENTATION

A. The Construction Manager shall oversee and maintain the development of commissioning documentation. The commissioning documentation shall be kept in three ring binders, and organized by system and sub-system when practical. All pages shall be numbered, and a table of contents page(s) shall be provided. The commissioning documentation shall include, but not be limited to, the following:

1. Approved test and balance report for the building being commissioned.
2. All accepted shop drawings of mechanical equipment. Shop drawings shall be full size sheets folded as required to fit in binders.
3. All pre-functional performance test checklists, signed by indicating personnel, organized by system and sub-system.
4. All verification and functional performance test checklists/results, signed by indicated personnel, organized by system and sub-system.
5. Three copies of the operation and maintenance (O&M) manuals specified in other sections of these specifications shall be included with the commissioning documentation.

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The manuals shall be incorporated in the commissioning documentation prior to commencement of O&M training required in this and other sections of the specification. Preparation of O&M manuals shall be as specified in section 3.07 of these specifications.

PART 2 - - PRODUCTS

2.1 TEST EQUIPMENT

- A. The appropriate Contractor(s) shall furnish all special tools and equipment required during the commissioning process. The Construction Manager shall furnish necessary utilities for the commissioning process.

2.2 TEST EQUIPMENT – PROPRIETARY

- A. 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 it's use, and assist in the commissioning process as needed. Proprietary test equipment (and software) shall become the property of the City of New York upon completion of the commissioning process.

PART 3 - EXECUTION

3.1 GENERAL

- A. A pre-construction meeting of all commissioning team members shall be held at a time and place designated by the City of New York. The purpose shall be to familiarize all parties with the commissioning process, and to ensure that the responsibilities of each party are clearly understood.
- B. The Mechanical Contractor shall complete all phases of work so the systems can be started, tested, balanced, and acceptance procedures undertaken. This includes the complete installation of all equipment, materials, pipe, insulation, controls, etc. per the contract documents and related directives, clarifications, and change orders.
- C. Acceptance procedures are normally intended to begin prior to completion of a system and/or sub-systems, and shall be coordinated with the Division 23 contractor. Start of acceptance procedures before system completion does not relieve the contractor from completing those systems as per the schedule.

3.2 PARTICIPATION IN ACCEPTANCE PROCEDURES

- A. The Mechanical Contractor shall provide skilled technicians to start-up and debug all systems within Division 23. Work schedules, time required for testing, etc. shall be coordinated by the contractor. Contractor shall ensure that the qualified technician(s) are available and present during the agreed upon schedules and of sufficient duration to complete the necessary tests, adjustments, and/or problem resolutions.
- B. System performance problems and discrepancies may require additional technician time, reconstruction of systems, and/or replacement of system components. The additional technician time shall be made available for subsequent commissioning periods until the required system performance is obtained.

- C. Qualifications of technicians shall include expert knowledge relative to the specific equipment involved. Contractor shall provide adequate documentation and tools to start-up and test the equipment, system, and/or sub-system.

3.3 DEFICIENCY RESOLUTION

- A. In some systems, improper adjustments, misapplied equipment, and/or deficient performance under varying loads will result in additional work being required to commission the systems. This work shall be completed under the direction of the Construction Manager with input from the contractor and equipment supplier.
- B. Corrective work shall be completed in a timely fashion to permit the completion of the commissioning process. Experimentation to demonstrate system performance may be permitted. If the deadline(s) pass without resolution of the problem, the City of New York reserves the right to obtain supplementary services and/or equipment to resolve the problem. Costs incurred to solve the problems in an expeditious manner shall be the contractor's responsibility.

3.4 ADDITIONAL COMMISSIONING

- A. Additional commissioning activities may be required after system adjustments, replacements, etc., are completed. The Contractor's suppliers shall include a reasonable reserve to complete this work as part of their contractual obligations.

3.5 SEASONAL COMMISSIONING

- A. Seasonal commissioning pertains to testing under full load conditions during peak heating and peak cooling seasons, as well as part load conditions in the spring and fall. Initial commissioning shall be done as soon as contract work is completed, regardless of season. Subsequent commissioning may be undertaken at any time thereafter to ascertain adequate performance during the different seasons.
- B. Heating equipment shall be tested during winter design extremes. Cooling equipment shall be tested during summer design extremes with a fully occupied building. Each contractor and supplier shall be responsible to participate in the initial and the alternate peak season tests of the systems as required to demonstrate performance.

3.6 ACCEPTANCE PROCEDURES

- A. Verification Tests

- 1. Scope of verification tests

- a. Operating tests and checks to verify that all components, equipment, systems, sub-systems, and interfaces between systems, operate in accordance with contract documents. These tests are to include all operating modes, interlocks, specified control responses, specific responses to abnormal or emergency conditions and verifications of the proper response of the building automation system controllers and sensors.
- b. Verify the validity of the TAB report.

- 2. Participants in verification tests

The Construction Manager shall be responsible for preparing the scope of these tests. The Construction Manager shall schedule the tests and assemble the commissioning team

members who shall be responsible for the tests. Participating contractors, manufacturers, suppliers, etc. shall include all costs to do the work involved in these tests in their proposals. Following is a list of tasks and supporting information that shall be required.

- a. Mechanical contractor – provide the services of a technician(s) who is (are) familiar with the construction and operation of this system. Provide access to the contract plans, shop drawings, and equipment cut sheets of all installed equipment.
- b. Controls contractor – provide the services of a controls engineer who is familiar with the details of the project. Provide details of the control system, schematics, and a narrative description of control sequences of operation.

3. Documentation and Reporting Requirements.

- a. Provide checklists for each component, piece of equipment, system, and sub-system, including all interfaces, interlocks, etc. Each item to be tested shall have a different entry line with space provided for comments. Separate checklists shall be prepared for each mode of operation. Provide space to indicate whether the mode under test responded as required or not. Also, provide space for all necessary parties to sign off on each checklist.
- b. Data sheets used in verification of the proper operation of the control system shall include each controller to be verified, and its location. For each controller, provide space for recording the readout of the controller, the reading at the controller's sensor(s), and any comments. Also, provide space for all necessary parties to sign off on each checklist.
- c. All test procedures and data sheets shall be submitted to the Commissioner for review and acceptance.

4. Instrumentation

- a. The Mechanical Contractor shall furnish all measurement instrumentation for the verification tests. All instruments will have calibrated within the six month period prior to these tests.

5. Verification Procedures

- a. The Construction Manager shall direct and witness the verification operating tests and checks for all equipment and systems.
 - 1) Set the system equipment (i.e., chiller, boiler, pumps, etc.) into the operating mode to be tested, i.e. normal shut down, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions.
 - 2) The Mechanical Contractor shall inspect and verify the position of each device and interlock identified on the checklist. Each item shall be signed off as acceptable (yes), or failed (no).
 - 3) This test shall be repeated for each operating cycle that applies to the mechanical system being tested.
 - 4) Operating checks shall include all safety cutouts, alarms and interlocks with smoke control and life safety systems during all modes of operation of the mechanical system.
 - 5) If during a test an operating deficiency is observed, appropriate comments shall be added to the checklist data sheet.
 - 6) Verification of the interface of the monitoring and control system, and the TAB criteria shall include the following:
 - a) Verify operation of the terminal units in heating cycles.

7) Verification of the proper responses of monitoring and control system controllers and sensors shall be as follows:

- a) For each controller or sensor, record the indicated monitoring and control system reading, and the test instrument reading.
- b) If the initial test indicates that the test reading is outside of the control range of the installed device, the calibration of the installed device shall be checked and adjusted as required. The deficient device shall be re-tested and the results recorded on the checklist data sheet.

b. The Construction Manager shall direct and witness the field verification of the final TAB report.

- 1) The Engineer shall select, at random, 10 percent of the report data for verifications.
- 2) The TAB contractor shall be given sufficient advance notice of the date of field verification. However, they shall not be informed in advance of the data points to be verified. The TAB contractor must use the same instruments (by model and serial number) that were used when the original data were collected.
- 3) Failure of an item is defined as:
 - a) For all readings other than sound, a deviation of more than 10 percent.
 - b) For sound pressure readings, a deviation of 3 decibels. (Note: variations in background noise must be considered).

4) A failure of more than 10 percent of the selected items shall result in the rejections of the final TAB report.

c. If the deficiencies are identified during verification, the Construction Manager must be notified, and action taken to remedy the deficiency. The final tabulated checklist data sheets shall be reviewed by the Engineer and the Construction Manager, to determine if verification is complete, and the operating system is functioning in accordance with the contract documents.

3.7 OPERATING AND MAINTENANCE MANUAL:

A. The operating and maintenance manual shall consist of a sturdy binder with 8-½" x 11" sheets containing the following major sections:

1. System Descriptions:

- a. Each major system shall be described, typewritten, in general terms, including major components, interconnections, theory of operation, theory of controls, unusual features and major safety precautions. This information should correlate with information provided in the manufacturer's instruction book. This section shall include, but not limited to, the following data:
 - 1) Detailed description of each system and each of its components showing piping, valves, controls, and other components, with diagrams and illustrations where applicable.
 - 2) Wiring and control diagrams with data to explain detailed operation and control of each component.

- 3) Control sequences describing start-up, all modes of operation, and shut down.
 - 4) Corrected shop drawings.
 - 5) Approved products data including all performance curves and rating data.
 - 6) Copies of approved certifications and laboratory test reports (where applicable).
 - 7) Copies of warranties.
- b. System diagrams, described in 3.7 B2 following, shall be incorporated in the appropriate systems descriptions. These should be reduced in size or folded to usefully fit into the manual.
- c. The instructions shall be suitable for posting adjacent to the equipment concerned.

The Contractor shall provide instructions for:

- 1) Hydronic distribution systems, including pumps.
- 2) DDC control systems.
- 3) Variable frequency drive.

2. Ongoing and preventive Maintenance

- a. Condensed, typewritten procedures for recommended ongoing and preventive maintenance actions shall be provided for each category of equipment/system listed in 3.7 A2 above.

This information shall include, but not be limited to the following:

- 1) Maintenance and overhaul instructions.
- 2) Lubricating schedule including type, grade, temperature, and frequency range.
- 3) Part list, including source of supply and recommended spare parts.
- 4) Name, address, and 24 hour telephone number of each subcontractor who installed equipment and systems, and local representative for each type of system.
- 5) Other pertinent data applicable to the maintenance of particular systems or equipment.

- b. These recommended preventive maintenance actions shall be categorized by the following recommended frequencies:

- 1) Weekly
- 2) Monthly
- 3) Quarterly
- 4) Semi-Annual
- 5) Annual
- 6) Other

B. Posted Operating Instructions and Diagrams:

1. Operating Instructions

- a. Copies of operating instructions provided in the operating manual (3.7 A above) shall be posted in the near vicinity of each piece of applicable equipment. The instructions shall be mounted nearly in frames under Plexiglas, where they can be

easily read by operating personnel. Instructions mounted outdoors shall be suitably protected from weather.

2. Posted Systems Diagrams:

- a. Simplified one (1) line diagrams of the systems listed shall be developed and transcribed on transparent "D" sized erasable sepia film and posted neatly under Plexiglas in the main or most appropriate equipment room for each reference by operating and maintenance personnel. These drawings shall be done in a professional manner which is acceptable to the Maintenance Division staff. The diagrams shall show each component including all valves installed in the system, with name and identifying number. If space does not permit valve numbers on the diagrams, valve charts shall be provided. Explanatory notes, where needed, shall be provided.

- 1) Supplemental Condenser Water
- 2) Other systems as applicable.

- b. These diagrams shall be suitable for reduction in size and use in the operating manual system descriptions previously covered.

3.8 OPERATING AND MAINTENANCE TRAINING

- A. The Mechanical Contractor, and appropriate sub-contractors, shall provide comprehensive operating and maintenance instruction on building systems prior to delivery. The instruction shall include classroom instruction delivered by competent instructors based upon the contents of the operating manual. Emphasis shall be placed upon overall systems diagrams and descriptions, and why systems were designed as they were. This overall systems instructions shall preferably be delivered by the consulting engineers. The classroom instructions shall also include detailed equipment instruction by qualified manufacturer representatives for all equipment for which operating instructions are provided. The manufacturer representative training shall emphasize operating instructions, and preventive maintenance as described in the operating manual. At a minimum, the training sessions shall cover the following items:

1. Types of installed systems.
2. Theory of operation
 - a. Design intent
 - b. Occupied vs. unoccupied or partial occupancy
 - c. Seasonal modes of operation
 - d. Emergency conditions and procedures
 - e. Comfort conditions
 - f. Indoor air quality
 - g. Energy efficiency
 - h. Other issues important to facility operation.
3. System operations.
4. Use of control system.
 - a. Sequence of operation
 - b. Problem indicators
 - c. Diagnostics
 - d. Corrective actions
5. Service, maintenance, diagnostics and repair.

6. Use of reports and logs.
 7. Troubleshooting, investigation of malfunctions, and determining reasons for the problems.
- B. Each classroom training period shall be followed by an inspection, explanation and demonstration of the system concerned by the instructors. All equipment listed in 3.7 A shall be started up and shut down, with the exception of sprinkler system.
 - C. The contractor shall be responsible for organizing, arranging, and delivering manner on a schedule agreeable to the Construction Manager.
 - D. The Construction Manager shall provide, at or before substantial completion, a proposed agenda and schedule of the above training for approval by the Construction Manager.
 - E. No training will be scheduled until approved O & M manuals have been submitted.

END OF SECTION 23 08 10

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
BASIC COMMISSIONING OF HVAC SYSTEMS – 23 08 10 - 14

SECTION 23 09 00 – INSTRUMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide instruments in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Thermometers and Temperature Wells.
- B. Hydronic Pressure Gauges.
- C. Test Plugs.
- D. Air Pressure Gauges.

1.3 SUBMITTALS

- A. Shop Drawings: Submit shop drawings of instrument display boards, along with other shop or field fabricated installations.
- B. Product Data: Submit manufacturer's latest published data for instrument types, materials, accessories and installation.

1.4 QUALITY ASSURANCE

- A. Instruments are to be factory calibrated for the temperature and pressure of the systems in which they are installed.
- B. Instruments to be industrial quality.

PART 2 - PRODUCTS

2.1 THERMOMETERS AND TEMPERATURE WELLS

- A. Provide duct thermometers of the dial face type, 3" diameter, bimetal hermetically sealed. Accuracy is to be factory calibrated to $\pm 1^{\circ}\text{F}$, for the average temperature of the system in which it is installed. Construction to be stainless steel with external calibration adjustment.
- B. Provide pipe insertion thermometers of the 9" mercury red reading scale, 2°F increments separable socket, adjustable angle with brass stem. Provide the following socket lengths:

Pipe Size	Insertion Length
4" and 5"	2½"
6" and 8"	5"
10" and over	7"

C. Provide pipe surface mount 2" diameter thermometers of the strap on, spring held type with insulating cup. Spring shall be stainless steel with thermoplastic seating cup and heat treated bimetallic sensor in accordance with ASTM bimetal TM-2.

D. Provide thermometers with ranges as follows:

1. Duct Systems: 25° to 125°F.
2. Condenser Water Systems:

Mercury: 0° to 120°F.
Dial: 0° to 150°F

E. Acceptable Manufacturers

1. Weiss
2. Trerice
3. Taylor
4. Ashcroft
5. Weksler
6. Or Approved Equal

2.2 PRESSURE AND COMPOUND GAUGES

A. Provide gauges of the bourdon tube type with minimum 4" dial and die cast aluminum case with black enamel finish. Gages shall have safety blow-out back. The movement to be all stainless steel with Grade A phosphor bronze bourdon tube brazed at socket and tip. Provide accuracy of the gauge within 1% of the scale range. The pointer will be the micrometer adjustment type recalibrated from the front.

B. Pressure gauges installed at pumps shall be liquid-filled type.

C. Provide needle-type isolation valves at each pressure gauge.

D. Acceptable Manufacturers

1. Weiss
2. Trerice
3. Taylor
4. Ashcroft
5. Weksler
6. Or Approved Equal

2.3 TEST PLUGS AND KITS

A. Provide test plugs 1/2" NPT made of brass body and cap with Nordel core.

B. Provide six (6) gauge kits consisting of:

1. (1) 1/4" NPT pressure gauge with minimum 4" dial face with a range of 0 psi to 150 psi,
2. (1) 1/4" NPT compound gauge with minimum 4" dial face with a range of - 15 psi to +30 psi,
3. (2) Ball valves, (1) needle valve, (3) 1/4" coupling adaptors, (3) 1/2" x 1/4" bushings,
4. (3) 3/4" x 1/4" bushings, (3) 3 foot long flexible hoses with female threaded swivel couplings, auxiliary test cock, (1) stainless steel 1" dial face stem thermometer minimum 4" long with a range of 0° to 220°F, (1) adjustable angle stainless steel stem thermometer with minimum 3" dial face with 4" stem with a range of 0° to 250°F.

5. A shock resistant molded plastic case with foam inserts and carrying strap.

C. Acceptable Manufacturers

1. Test Plugs

- a. Ernst
- b. Weksler
- c. Texas Fairfax
- d. Or Approved Equal

2. Test Kits

- a. PTC
- b. Weksler
- c. Weiss
- d. Or Approved Equal

2.4 AIR PRESSURE GAUGES

A. Magnehelic Gauge: 4" dial with frictionless magnetic movements. Gauge to operate without use of fluid. Range to be compatible with service. Accuracy $\pm 2\%$ of scale. Die cast aluminum case with clear plastic face and "O" ring seal. Diaphragm to be silicone rubber with cobalt magnet and sapphire bearings.

B. Pressure Gauge: Low internal volume spiral/helical coil bourdon tube with solid front and rear blowout plug. "C" tubes will not be accepted. Gauges to be tapped $\frac{1}{4}$ " NPT back and bottom. Accuracy to be 2% over full range.

C. Acceptable Manufacturers

1. Dwyer
2. Trerice
3. Orange Research
4. Or Approved Equal

PART 3 - EXECUTION

3.1 Provide local panel for mounting of duct thermometers located next to air handler which it serves. Locate panel so that length of capillary tubing is held to a minimum. Mount panel on kindorf fastened securely to structure. Thermometers to be provided in each system as follows:

- A. Upstream of each heating coil bank. Range 0 – 100F
- B. Downstream of each heating coil bank. Range 0 – 160F
- C. Upstream of each cooling coil bank. Range 0 – 100F
- D. Downstream of each cooling coil bank. Range 0 – 100F
- E. Where shown on Contract Documents.

- 3.2 Test plugs to be provided at inlet and outlet of each water coil.
- 3.3 Provide pressure gauges at the following locations:
 - A. Upstream and downstream of all coils, strainers, controls valves and pumps.
 - B. Where shown on contract drawings.
- 3.4 Provide differential pressure gauges piped and mounted at an observable location in the condenser water headers at dry cooler.

END OF SECTION 23 09 00

SECTION 23 09 23 – BUILDING MANAGEMENT AND CONTROL SYSTEM (BMCS)

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

- A. The specifications hereinafter shall be superseded by the City of New York's rules and regulations when a conflict occurs.
- B. These drawings may indicate the size and general location of work. Final location and mounting orientation of all thermostats and other visible devices are to be verified by the Commissioner and the City of New York.
- C. Prior to starting any work, purchasing of equipment, etc., coordinate the work with other trades. Confer with other contractors whose work might affect this installation; arrange all parts of this work and equipment of others with the building construction and with architectural finish so that it will harmonize in service and appearance. In the event there is a conflict in coordination between trades, the Commissioner will resolve it.
- D. Interruption of existing building services in order to make new connections to existing wiring, piping, ducts, etc. shall not be done without approval. All existing service shut-downs shall be supervised and as directed by the City of New York. The contractor shall submit request at least 48 hours prior to any requested shutdown.
- E. All parts of the work and associated equipment shall be tested and adjusted to work properly and be left in perfect operating condition.
- F. When conflicts occur in the specifications or on the drawings, or between either, the items of greater quantity or higher cost shall be provided.
- G. The contractor shall provide all items of labor or materials not specifically indicated, but required to complete the intended installation.
- H. The work under this contract shall be performed and coordinated simultaneously with work of other trades so as not to delay the overall progress of work.
- I. This contractor shall be responsible for his work with its completion and final acceptance and shall replace any of the same which may be damaged, lost or stolen, without additional costs to the City of New York.

1.2 SHOP DRAWINGS AND EQUIPMENT SUBMISSIONS TO THE ENGINEER

- A. One (11" X 17" Minimum size) paper set of drawings, one copy of the data sheet for each component submitted, one copy of the Automatic Control Valve Schedule which shall show the name of the valve (e.g.-HV-1 Heating Coil), what mechanical drawing(s) the valves are shown, the name of the valve manufacturer, the pipe size where the valve will be installed, the valve size, flow (GPM or #/hr), design pressure drop, actual pressure drop, valve body material, close off, and rating, valve tag number (coordinate with Mechanical Contractor). Note: All flows shall be based upon approved equipment submittals. DO NOT rely on schedules for this information. Submit a damper schedule coordinated with the sheet metal contractor from his approved sheet metal shop drawings. This schedule shall include (as a minimum) Damper size, number of sections making up that damper, if multi-sectional, number and size of sections, torque required for each damper (or section) the quantity of damper actuators required to operate each damper or section, and the make and model number of each damper actuator.

- B. Submit one copy of certified equipment manufacturer's data sheets. Data sheets shall EITHER have all non-applicable information crossed out, or all applicable information highlighted in yellow highlights. Data sheets shall be arranged first by manufacturer, alphabetically, then by part number. If there are multiple parts by a single manufacturer, arrange data sheets in model number numerical order, Consecutively number each page and provide a cover sheet labeled (Manufacturer's Data Sheets. Provide an index so that each control device can be found in the index, It shall not be necessary to look for a data sheet by paging through the data sheets.
- C. Shop drawings and data sheets shall be submitted for approval prior to fabrication, erection or purchase.

1.3 VERIFYING EXISTING CONDITIONS

- A. The contractor shall visit the premises to determine existing conditions and compare same with drawings and specifications and satisfy himself of all conditions prior to the submission of a bid proposal.
- B. The contractor shall visit the premises to determine access of material and equipment to the final installed location prior to submitting his bid.
- C. No allowances will be made for failure to comply with these requirements and a bid proposal shall be construed as evidence he has done so.
- D. Retain all existing mechanical work outside the project area unless otherwise noted.
- E. Maintain service continuity to all areas not being renovated.
- F. Where existing piping is extended, modified, and/or deleted, existing piping remaining shall remain intact and leak free. This requirement covers all piping, including pneumatic air piping (if any).

1.4 IDENTIFICATION OF EQUIPMENT AND CONTROLS

- A. All equipment, control panels, etc. shall be labeled with black Bakelite plates with white engraved upper case letters enclosed by white border on beveled edge screwed thereon, which shall indicate systems service.
- B. All valves (hand actuated or automatically controlled) shall be tagged with 2" brass plated tags and chains. A valve chart schedule for all valves, framed and wall mounted, shall be installed where directed. Coordinate with mechanical contractor.

1.5 GUARANTEES

- A. All work shall be guaranteed to be free from leaks or other defects. All defective material or work shall be replaced or repaired.
- B. The guarantee period shall be for one (1) year from the date of acceptance, which shall be the date of final payment or the date of formal notice of acceptance, whichever is earlier.

1.6 WORK INCLUDED

- A. The work includes, but is not limited to the following:
 - 1. Automatic temperature controls and/or Building Management and Control System extensions including all associated installation, wiring, cabling, programming, and setup.
 - 2. Firestopping of wall and floor pipe and duct penetrations.

1.7 WORK INCLUDED UNDER OTHER SECTIONS

A. The following work will be done under other sections:

1. Finish painting and patching.
2. Masonry and concrete foundations for equipment.
3. Electrical wiring for power, and fire alarm interlocking controls.
4. Access doors in finished construction.
5. Electrical disconnect switches.
6. Exhaust and outside air intake louvers.
7. Furnishing duct type smoke detectors.

1.8 OPERATING AND MAINTENANCE INSTRUCTIONS

A. After final test and adjustments fully instruct City of New York's operating personnel in all details of operation for equipment installed. A signed receipt, which shall be obtained from the operator, shall be construed as evidence that instructions were satisfactory.

B. Furnish three (3) copies of written descriptions of all systems covering all manual operating procedures, automatic control descriptions, and automatic control temperature and pressure settings. Written descriptions of operation, as-built shop drawings, data sheets, wiring diagrams, manufacturers recommended operating and maintenance instructions, spare parts recommendations, and troubleshooting diagnostic instructions. They shall be clearly marked to indicate applicability.

C. Furnish three (3) copies of APPROVED "As Built" automatic temperature controls or BMCS extension details. If an existing BMCS was extended under the requirements of this project, the existing system shall be fully illustrated, and the extension / modification highlighted and included in the O&M instruction.

1.9 ELECTRICAL WIRING AND WIRING DIAGRAMS

A. Electrical wiring for power, safety and interlocking controls for motors, motor starter and other electrical apparatus and devices shall be provided by the electrical contractor under another division of contract work.

B. The mechanical contractor shall prepare and submit for approval, terminal point to terminal point, completely coordinated and integrated wiring diagrams for all wiring requiring field installations by the electrical contractor over and above the requirements of the temperature controls / BMCS requirements.

C. Specific wiring diagrams of factory installed equipment wiring shall also be submitted for approval and furnished to the electrical contractor for his installation requirements and other uses.

1.10 AUTOMATIC CONTROL VALVES

A. Automatic control valves shall be globe type with modulating plug, throttling guides, replaceable seats and discs, and stainless steel stems or characterized flow control valves.

B. Valves 2 in. and smaller may be characterized ball valves or globe type. Ball valves shall have nickel plated forged brass bodies, stainless steel stems and balls with fiberglass reinforced Teflon PTFE seals. Globe valves shall have bronze bodies with screwed ends. Valves 2½ in. and larger shall be globe type with iron bodies with flanged ends.

- C. Valve body rating shall be equal or greater than the piping in which it is installed and the valve shall be rated for operation against the maximum system differential pressure. Rangeability shall be at least 40 to 1 or as required to provide proper control. Leakage shall not exceed 0.01 % of rated CV for single seated valves and 0.5% of rated CV for double-seated valves.
- D. The valves shall be quiet in operation and fail safe in either normally open or normally closed position in the event of a power failure. Valves capable of operating at varying rates of speed to correspond to the exact dictates of the controllers and variable load requirements, and shall be capable of operating in sequence when required by the sequence of operation. Submit valve close off pressure ratings.
- E. Valve operators shall be of the electric spring return type (unless otherwise noted) sized to insure tight seating against maximum differential pressure.
- F. Characteristics
 - 1. Chilled Water Service: Equal percentage flow characteristics, single seated type. Provide double-seated type for high close-off pressure applications.
 - 2. Hot Water Service: Equal percentage, single seated. For water temperature 250°F or greater provided stainless steel plug and seat.
 - 3. Steam Service: Linear flow characteristics, single seated. For steam 50 psig or greater, provide stainless steel plug and seat.
 - 4. Bypass Service: Linear flow characteristics. Single or double seated.
- G. Valve Action
 - 1. Cooling valves normally closed.
 - 2. Preheat valves normally open (one per coil section).
 - 3. Reheat valves normally closed.
 - 4. Or as noted.
- H. Size valves to meet the coil loads as specified and as follows:
 - 1. All valves shall be sized based upon data from approved equipment submittals.
 - 2. 2-Position Valves: Line size unless noted.
- I. Water Service: Maximum pressure drop shall be equal to the pressure drop of the associated coil or exchanger, or 5 psi whichever is greater.
 - 1. Steam Service: Minimum pressure drop equal to 80 percent of steam inlet gauge pressure but not greater than 50 percent of absolute pressure.
 - 2. Relief and Bypass Valves: Sized according to pressure available.
 - 3. Chilled Water Service: Where load exceeds capacity of 4 in. control valve provide two valves operating in sequence the larger valve shall have a coefficient of flow (CV) that is between 2 and 3 times larger than the smaller valve.
 - 4. Steam and Hot Water Service: Where load exceeds capacity of 2½ in. valve, provide two valves. The larger valve shall have a coefficient of flow that is between 2 and 3 times larger than the smaller valve.
- J. Automatic Butterfly Valves
 - 1. Butterfly valves permitted for use for two-position operation on low temperature water applications only.
 - 2. All butterfly valves shall be of the full lug body style with lugs drilled and tapped and have drip tight shutoff capabilities in either direction up to and including maximum system working pressure. Butterfly valves shall be capable of closing tight after long periods of

- inactivity. All valve bodies 24 inch and above to be dual flanged. Flanges to be drilled through to ANSI Standards.
3. All valves shall be suitable for use with ANSI Standards flanges. Bodies shall be semi-steel or cast iron.
 4. Valves shall provide tight shutoff up to the full valve rating on dead end or isolation service without the use of downstream flanges. Submit valve close off pressure ratings.
 5. All valves shall be furnished with self-lubricated bronze bearings. Shafts seals shall be provided to prevent leakage and to protect bearings from internal or external corrosion.
 6. Seats shall be of the reinforced resilient type (or retained seat on high performance valves) and shall also act as a body liner to prevent flow from contacting the body casting. Resilient seats shall have flange sealing lips to provide a positive seal without use of flange gaskets.
 7. Seats shall be Nordel suitable for use with HVAC water to 250°F. Shafts shall be one piece and shall of 416 stainless. Shafts shall be finish ground and polished to minimize bearing and shafts seal wear. Shafts of 8 inch and larger valves shall have a non-adjustable thrust collar.
 8. Discs shall be semi-steel with welded nickel edge. The disc-to-shaft connections shall be type 316 stainless steel. Pins, shaft and disc of all valves shall be individually machined and completely interchangeable.
 9. Provide valves with factory installed actuators of the electric or electro hydraulic type and sized for tight shutoff at maximum system differential pressure. Actuators for modulating service shall be equipped with integral position potentiometer. Provide actuators with an integral hand wheel or local manual controls for manual operation. Each actuator shall be equipped with adjustable limit switches. Input voltage shall be 24, 120, or 480 VAC, 60 HZ.
 10. Valves shall be line size unless otherwise noted on drawings.
 11. Approved Manufacturers: Bray, Jamesbury, Posiseal, Belimo, or enginner approved equal.

1.11 SYSTEM CONTROL PROCESSOR

- A. Provide a unit mounted or panel mounted microprocessor based control system for programming of temperature and humidity setpoints, alarm parameters, monitoring of operational status, and maintaining a database of room conditions and environmental system operational status.
- B. The control system shall allow programming of the following room conditions utilizing a portable laptop computer, furnished by the controls contractor with all necessary programming tools included:
 1. Temperature setpoint (65(-85(f)
 2. Temperature sensitivity (+1--+5(f in 0.1(f increments)
 3. Humidity setpoint (40-60%rh)humidity sensitivity (+1--+10% rh in 0.1% increments)
- C. All setpoints to be adjustable from the individual unit controllers.
- D. Temperature and humidity sensors to be capable of being calibrated using the front monitor panel controls to coordinate with other temperature and humidity sensors in the room.
- E. Temperature anticipation: the microprocessor shall have the capability of responding to varying rates of temperature change in the rooms controlled. The control system shall delay heating or cooling in response to very low rates of change and shall advance heating or cooling in response to rapid temperature changes.

- F. Predictive humidity control: the microprocessor shall calculate the moisture content in the room and prevent unnecessary humidification and dehumidification cycles by responding to changes in dewpoint temperature.
- G. Compressor short-cycle control: the control system shall prevent compressor short-cycling by incrementally expanding the control hysteresis of the compressor stages when compressor cycles approach 10 cycles per hour. Timer-based short cycle controls are unacceptable.
- H. Automatic compressor sequencing: the microprocessor shall automatically change the lead/lag sequence of the compressors after each start to lengthen compressor-on cycles and even compressor wear.
- I. System auto-restart: for start-up after power failure, the system shall provide automatic restart with a programmable (up to 10 minutes in 6-second increments) time delay. Programming can be performed at the unit control and monitoring system.
- J. Sequential load activation: during start-up, or after power failure, the microprocessor shall sequence operational load activation to minimize inrush current. Systems allowing multiple loads to start simultaneously are unacceptable.
- K. Diagnostics: provide all electronic circuitry with self-diagnostics to aid in troubleshooting. Each printed circuit board shall be diagnosed and reported as pass/not pass.
- L. Communications: the microprocessor shall be compatible with all remote monitoring and control devices.
- M. Monitor: provide a monitor panel to display operational status, alarms and permit calibration and programming of operation parameters. All indicators shall be in language form. No symbols or codes are acceptable.
- N. Front monitor panel: provide the front monitor panel with a keyboard that will allow adjustments to the controller's setpoints.
- O. Alarms: activate an audible and visual alarm in event of any of the following conditions:
 1. High temperature
 2. High humidity
 3. Low humidity
 4. High compressors head pressure (compressorized systems only)
 5. Humidifier problem
 6. Loss of air flow
 7. Change filters

1.12 AUTOMATIC DAMPERS

- A. All automatic dampers shall be interlocking edges, and either parallel or opposed blade action, inflatable, light compression seals. Air leakage to one-half of one percent of rated flow for any damper over 12 inches wide. Dampers to be horizontal blades.
- B. Electric/electronic operators shall be used for damper operation with spring return so that, in the event of power failure, they will fail safe in either the normally open or closed position as required with due regard for the prevention of energy loss, freezing, moisture damage and smoke or fire transmission.
- C. Construction

1. Frame: roll formed, 13 gauge galvanized steel.
2. Blades: 6- or 8-inches or a combination of both. Drive blades over 28 inches on single section and over 22 inches on multi-section. Dampers are reinforced. Drive blades shall have extendable axles for external operations
3. Blade seals: tight-clearance, spring stainless steel strips. Interlocking edges are fitted with inflatable, neoprene rubber blade edge seals. The inflatable seal blade edges to be fabric-reinforced, high temperature.
4. Temperature ranges: -4.0 To 200°F low leakage for energy conservation.
5. Maximum static pressure differential: 6 inches wg.
6. Maximum approach velocity: 400 ft/min.
7. Hardware: linkage brackets and connecting rods to be 5/16 inch diameter zinc plated steel. All trunnion rods are brass. Set screws and mounting bolts to be zinc plated. Dampers used either nylon or oilite bearings.
8. Axles: all axles to be 1/2 inch diameter zinc plated steel axles bolted to the blades. Drive blades on all dampers to have extra-long adjustable axles that can be extended 4 inches beyond the frame.
9. Damper operator sizing: operator sizes are based on the outside dimension of the frame perpendicular to the blades.

1.13 AUTOMATIC TEMPERATURE CONTROLS – BMCS TYPE

- A. The automatic temperature controls for this project shall be an extension of the existing Trane Building Management and Control System (BMCS).
- B. The controls contractor for this project shall be either the same manufacturer as the original installation of which this system is an extension, or they shall be properly trained by the existing system manufacturer with authorized access to the original system.
- C. Contractor shall submit an architectural diagram of the existing system, and highlight the additions to that system as a result of work performed under this project. Similarly, where points are brought to an existing DDC panel, the entire panel with all connections (new and existing) shall be illustrated. All new wiring to the panel shall be highlighted in a manner to easily show the difference between existing and new work.
- D. New DDC controls provided for this project shall be fully compatible with the existing system.
- E. Provide an extension of the dedicated data communications network including required network switches, repeaters, gateways, and electric isolation for processors and protection from electrical interference.
- F. Upon approval of shop drawings, and completion of the work on the existing system, the controls contractor shall append the existing O&M Manuals with updated control diagrams, revise all graphics in the system to reflect the changes made to the system, program all alarm limits and alarm messages, and instruct the operating personnel on all changes and modifications. As a requirement for final payment, the BMCS operators must sign of that all programming, changes and instructions were completed satisfactorily.

1.14 SEQUENCE OF OPERATIONS - GENERAL

- A. Supply, install necessary sensing, controlling and controlled devices, piping, wiring and commissioning of automatic control systems, so as to provide a complete control system, meet requirements of control sequences hereinafter specified, as noted, and in accordance with Contract Documents.

- B. Contractor to customize control strategies and control sequences and be able to define appropriate control loop algorithms and choose the optimum loop parameters for loop control. All control loops shall be tuned to stabilize within $\pm 1\%$ of setpoint within 5 minutes of setpoint change or system startup.
- C. Safety devices shall be hardwire-interlocked with "hand" and "automatic" positions in series with motor controller holding coil circuit.
- D. Startup sequences and automatic control sequences as described on hereinafter shall operate in both automatic and manual modes.
- E. Smoke control and life safety sequences shall override other automatic control sequences including hardwired safety devices.
- F. Reset schedules and setpoints shown in sequences are for initial programming and start-up. During system check out and through the warranty period, the reset schedules and setpoints shall be fine-tuned to obtain desired comfort and energy results.
- G. The output of the reset schedules should be limited between maximum and minimum values. The intent of the reset schedules indicated is that the range of the output be limited between the minimum and maximum values indicated in the reset schedules.
- H. All functions which use analog points to switch equipment on and off (e.g., fans, pumps) must be programmed with dead bands, and if necessary, time delays to prevent short cycling of equipment. Alarms generated through analog limits as noted in the sequence of operation and where required for proper annunciation of an alarm condition shall be programmed by the BMCS contractor at startup.
- I. The following control sequences, control loops and operational data define the manner by which the project mechanical systems shall function to maintain the environmental conditions described herein.
- J. The monitoring and control point list is the engineer's estimation of the points required to successfully control a particular system as specified. The BMCS contractor is responsible to provide all hardware, control loops, and points required to provide a complete and operational system as specified.
- K. The specified control sequences refer to the application programs described above. Refer to that Section for more detailed information regarding the requirements of a specific application program.
- L. All control setpoints and variables shall be fully adjustable in the field through the use of a portable engineering terminal or lap top computer.
- M. For all systems containing both cooling and heating coils (except in reheat position), the heating coil control valve shall be closed whenever cooling coil is activated and vice-versa.
- N. For all systems containing steam preheat/heating coils, provide for each coil section a freeze-stat, a duct mounted temperature sensor (averaging type), and automatic control valve(s).
- O. A freeze-stat shall be installed in a horizontal serpentine pattern across the discharge face of the preheat/heating coil. Provide a minimum of 1 ft. of sensing element for each 1 sq. ft. of coil area. The freeze-stat shall provide a hard-wired shutdown of the fan with auxiliary inputs to the BMCS for alarm status. The freeze-stat shall require a manual reset unless otherwise specified.

- P. Variable frequency drives will start in minimum speed position and ramp up to speed over a two minute adjustable ramp time (minimum).
- Q. All zone loop controllers shall incorporate control error reduction. Where used to control heating and cooling, zone thermostatic control shall incorporate deadband control of at least 5 degrees F. where the heating and cooling energy to the zone is shut off or reduced to a minimum. Refer to individual sequences of operation for exceptions to this requirement (if any).
- R. Motor status for all motors smaller than 1 HP shall be binary current switches mounted on the motor power leg. All motors 1 HP and above (unless otherwise stated) shall be obtained via analog current sensors mounted on the motor power leg. The sensor shall be calibrated for normal operation and abnormal operation based upon low, normal, and high current sensed. The input from the sensor shall be programmed with analog alarm limits to indicate sensor failure or loss of power (0 mA), motor off (4 mA), motor running (mA = Normal Running Amps \pm 5 amps) and motor overloaded (mA = Normal Running Amps + 10 amps).

1.15 SEQUENCE OF OPERATIONS - SYSTEMS

- A. Refer to contract drawings for sequences of operation for systems.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 23 09 23

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SECTION 23 11 13 – SHEETMETAL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide all ductwork required to make the various air conditioning, ventilating and heating systems complete and ready for operation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. General Ductwork.
- B. Round Duct.
- C. Flat Oval Duct.
- D. Duct Accessories.
- E. Flexible Duct.
- F. Outdoor Duct.
- G. Belt Guards.
- H. Access Doors.
- I. Flexible Connections.
- J. Air Chambers.
- K. Plenums.
- L. Drain Pans.
- M. Duct Sealant.

1.3 SUBMITTALS

- A. Shop Drawings
 - 1. Submit sheetmetal shop details for approval before any duct layouts are submitted for review. Shop drawings will not be acted on before shop details have been reviewed.
 - 2. Submit layouts of all ductwork drawn to a scale of 3/8" to the foot for approval.
 - 3. Submit drawing of location and size of sleeves for openings in floors and walls.
 - 4. Prior to ductwork fabrication, submit to the Engineer for review, complete certifications and data (in the English language) on all sheetmetal materials manufactured outside the United States.
 - 5. Sheetmetal ductwork drawings serve as the base sheets for the Contractor Coordination Drawings specified in Section 23 00 02. Submit ductwork shop drawings for review as specified in Section 23 00 02.
- B. Samples
 - 1. Submit samples of flexible ducting and special materials, as required by the Engineer.

1.4 QUALITY ASSURANCE

- A. Construct ductwork according to the pressure-velocity classifications established by SMACNA, and as called for on the duct drawings.
- B. Construct ductwork in accordance with Table 1-5 of the 1995 SMACNA Manual for 2" static pressure ductwork and Table 1-6 of the 1995 SMACNA Manual for 3" static pressure ductwork, with the exception that tie rods may not be utilized in ductwork 60" wide and smaller.
- C. Provide flexible duct assembly listed as Class 1 air duct by the Underwriters Laboratories under UL-181 "Standard for Factory-Made Air Duct Material and Air Duct Connections" at a flame spread of not over 25 and a smoke developed rating of not over 50 complying with NFPA Standard 90A.
- D. Flexible air ducts to have a heat loss per foot of duct as measured by Air Diffusion Council Flexible Air Duct Test Code FD 72-R1 and be UL listed as Class I under UL-181.
- E. Comply with OSHA standards and requirements.

PART 2 - PRODUCTS

2.1 GENERAL DUCTWORK

- A. Construct sheetmetal ductwork of galvanized iron of gauges specified in SMACNA Tables 1-4 to 1-9, unless otherwise called for on the Drawings.
- B. Unless otherwise indicated or specified, construct all sheetmetal ductwork in accordance with the HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, Second Edition, 1995, published by the Sheetmetal and Air Conditioning Contractors National Association, Inc., and herein referenced as the SMACNA Manual. Various page numbers, table numbers, plate numbers, detail numbers, and figure numbers herein cited refer to this edition of the SMACNA Manual. Install all ductwork in accordance with the arrangements and sizes shown on the Drawings and as specified herein.
- C. Construct low pressure ductwork of "lock forming quality" galvanized steel of the gauge thickness listed in Tables 1-5 for the pressure class indicated of the 1995 SMACNA Manual with gauge tolerances as listed in Appendix A-2 of the 1995 SMACNA Manual. Comply with ASTM A-525 for all steel with a hot dipped galvanized coating weight that complies with the G90 section of ASTM A525 and ASTM 90.
- D. For rectangular ductwork, use radius elbows without vanes with centerline radius equal to 1½ times duct width. Where space is limited, use either curved elbow with single vane and with centerline radius not less than width of duct, or use square vaned elbow. For square elbows, use single thickness vanes for ducts up to 18 inches wide and double thickness airfoil vanes in ducts over 18 inches wide. Hold vanes in runners. See SMACNA Detail Fig. 2-3 and 2-4 of Standards. Construct turning vanes constructed of the same material as the ductwork in which they are installed.
- E. Alternative Joining
 - 1. At the Contractor's option, ductwork in sheetmetal gauges 16 through 26 may be joined at the transverse joints with pre-fabricated galvanized Ductmate-35, or approved equal, sections, or with fabricated TDF or TDC T-24 type flanged transverse joints with bolted corners, gaskets, and sealants, constructed in accordance with SMACNA Manual (1995), Table 1-12. Submit the joint packing material and joint construction details using this method and a 12" x 12" x 12" long duct sample to the Engineer for review. Plastic joint

clips are not acceptable. Do not join flanged and prefabricated joints by different manufacturers.

2. Ductmate or similar system must meet criteria as set forth in SMACNA Chapter 7.
3. Install Ductmate system, or approved equal according to manufacturer's instructions from the manufacturers listed in Article 2.15. Figures 12 and 13 of the latest edition of installation instructions regarding the fastening of Ductmate angles must be observed. Bolting of corners is required.

2.2 ROUND DUCTWORK

- A. Provide round duct gauges in accordance with Table 3-2 A and B of the 1995 SMACNA Manual. Provide girth reinforcing, girth joints, longitudinal seams, etc., in accordance with Figures 3-1, 3-2, 3-3, 3-4 and 3-5 of the 1985 SMACNA Manual. Snap-lock longitudinal seams are not acceptable. Draw band joint connection will not be acceptable. Use minimum 16 gauge galvanized steel with welded joint construction and companion flange joints for round duct over 52" in diameter.
- B. Use 5-piece or die-formed elbows up to 12 inch diameter. Use 7-piece on larger ducts with centerline radius equal to 1½ times duct diameter.

2.3 DUCT ACCESSORIES

- A. Provide spin-in fittings for connecting flexible duct to sheetmetal duct, incorporating die-formed locking groove with adjustable damper using spring loaded retractable bearing and positive locking regulator.
- B. Provide turning vanes in all 90° elbows where shown on the Drawings. Provide double fin type with 2" inside radius for small vanes (Figure 2-3) and 4½" inside radius for large vanes (Figure 2-3). Provide small vanes spaced no more than 2-1/8" apart for ducts up to 18" wide. Provide large vanes spaced no more than 3¼" apart for ducts 19" wide. Shop-fabricated turning vanes will not be acceptable unless they are machine shaped, punched and assembled. Use radius elbows where shown on the Drawings and for elbows 24" in width and smaller. Use radius elbows in accordance with Type RE-1 and RE-3, in Figure 2-2 of the SMACNA Manual.

2.4 FLEXIBLE DUCTWORK

- A. Provide flexible duct as a factory glass fiber insulated assembly with vapor barrier jacket and a maximum thermal conductance (C-factor) of 0.23 Btu per Hr per SF per °F at 75°F. Construct flexible duct of machine wound spiral aluminum helix, reinforced aluminum foil fabric mechanically locked into a spiral aluminum helix, or two-ply polyester core encapsulating a galvanized steel wire helix suitable for a positive working pressure of at least 10" w.c.
- B. Acceptable Manufacturers
 1. Genflex
 2. Thermaflex
 3. Flexmaster
 4. Or Approved Equal

2.5 OUTDOOR DUCTWORK

- A. Coat galvanized ductwork, except kitchen range hood exhaust, exposed to the weather with a coat of CAD-A-MASTIC 800, Fibrated Asphalt Emulsion, as manufactured by EPOLUX; cover joints with glass fabric tape and apply a second coat of CAD-A-MASTIC 800. Or use an approved equal product from the manufacturers in Article 2.15-D.

2.6 ENGINEATOR SHAFT DUCTWORK

- A. Construct make-up air and exhaust ductwork of 12 gauge galvanized ductwork with welded joints in accordance with SMACNA Industrial Standards.
- B. Construct ducts exposed to weather of 3/16" minimum, stainless steel.
- C. Provide fire wrap insulation suitable for two hour rating internal of shaft.

2.7 BELT GUARDS

- A. Provide guards on all belt drives. Provide split type with tachometer opening at shafts fabricated from galvanized metal and braced to prevent rattling.
- B. Use solid or expanded metal on motors up to 5 horsepower.
- C. Use expanded metal on motors 7½ horsepower and up.
- D. Use angle frames on motors 25 horsepower and larger.
- E. Provide sufficient space so that sheaves can be changed to larger sizes.

2.8 ACCESS DOORS IN SHEETMETAL

- A. Where required in ductwork or casings, provide suitable access doors and frames to permit inspection, operation and maintenance of apparatus concealed behind the sheetmetal work. Provide access doors in insulated ducts of insulated double panel construction, not less than 20 gauge, galvanized steel. Provide access doors in uninsulated ducts of single panel construction not less than No. 18 gauge, galvanized steel. Provide all access doors with sponge rubber gaskets around their entire perimeter.
- B. Hang access doors in ductwork in separate frames and attached to duct with aircraft type cable. Provide "Ventlok No. 100" cast zinc latches, or approved equal, one (1) per side. Or use an approved equal product from the manufacturers in Article 2.12-C
- C. Install hinged walk-in type casing access doors where required and indicated on the Drawings. Construct casing access doors 57" high x 24" wide where possible and be complete with heavy duty hinges, hardware, and Ventlok #260 latch handles, or approved equal. See figures 6-11 and 6-12, and Table 6-2 of the 1995 SMACNA Manual. Or use an approved equal product from the manufacturers in Article 2.15-D, or an approved product by an approved manufacturer.
- D. Where required in ducts carrying humid air, or grease laden air, locate access doors in the side of ducts.

2.9 FLEXIBLE CONNECTIONS

- A. Construct flexible connections of canvas for low pressure systems, of vinyl-covered fiberglass (or neoprene) for medium and high pressure systems, and of heavy noncombustible material such as Thermafab by DuroDyne for kitchen exhaust fans or lab exhaust fans. Flexible connections must not contain asbestos and are to be suitable for the operating pressure and temperature of the system in which they are installed.

2.10 AIR CHAMBERS

- A. Provide air chambers of field assembled air supply apparatus, and as shown on the Drawings, entirely of "double-casing" construction.

- B. Construct the casing panels of two sheets not less than No. 20 U.S. gauge galvanized iron each: the outer sheet solid, the inner sheet perforated. Use "Fiberglass 704" (Owens Corning) 4 inch thick fibrous glass, 6 pound per cu. ft. density insulating board between these sheets, or approved equal. Or use an approved equal product from the manufacturers in Article 2.12-D, or an approved product by an approved manufacturer.

2.11 PLENUMS

- A. Provide air plenums for return and exhaust fans of "single casing" construction of No. 16 gauge galvanized iron braced and stiffened on outside by means of 2 inches by 2 inches by ¼ inch steel angles, or with standing seam panels not to exceed 26 inches in width.
- B. Provide discharge and intake air plenums for connecting the fresh air intake and discharge openings to the various systems, as shown on the Drawings, of No. 16 gauge aluminum construction, braced and stiffened on outside by means of 2 inches by 2 inches by ¼ inch aluminum angles, or with standing seam panels not to exceed 26 inches in width.

2.12 LOUVERS

- A. Furnish and install all louvers indicated on the Drawings unless specifically indicated to be provided by others. Size louvers as indicated on the Drawings and suitable for installation in the mounting arrangement shown on the Architectural Drawings and described in the Architectural Specification.
- B. Construct louvers of 0.125" thick extruded aluminum stationary hook blades. Louver depth is 4". Design supports to meet the wind requirements established by local codes. Maximum allowable span between mullions is 10 feet. Design louvers with a net 50% free area. There shall be no water penetration at 700 FPM free area velocity. Provide for noiseless expansion and contraction of all materials and assemblies due to temperature changes in a range between 17°F and 180°F without detriment to appearance or performance.
- C. Acceptable Manufacturers
 - 1. Ruskin
 - 2. Arrow
 - 3. Air Balance
 - 4. Or approved Equal

2.13 AUXILIARY DRAIN PANS

- A. Construct drain pans of 16 gauge galvanized steel with all joints brazed. Construct pans watertight with hemmed edges.
- B. Under any equipment for which a pan is shown on the Drawings, and under all horizontal air handling units, duct mounted hot water or chilled water coils located above hung ceilings or electrical equipment, piping over electrical equipment, etc., furnish and install auxiliary drain pans. Extend the auxiliary drain pan at least 6" beyond the equipment it is serving and be at least 2" high.
- C. Provide drain pipe connections of at least 3/4", or as shown on the Drawings. Unless otherwise shown on the Drawings, route a 3/4" IPS galvanized steel or Type "L" copper tube to the nearest equipment room floor or hub drain independent of any air handling unit drains.

2.14 SCREENS

- A. Furnish and install all wire mesh screens indicated in the Construction Documents.

- B. Fabricate frame of extruded aluminum with mitered reinforced corners.
- C. Provide non-rewireable frame with permanently secured screen mesh.
- D. Provide mesh of ½ inch square, .063 inch intercrimped aluminum wire.

2.15 DUCT SEALANT

- A. Seal all joints and seams on medium and high pressure ductwork with an oil soluble elastomer sealant.
- B. Sealant to be fast curing to a firm rubbery seal and have gap filling properties with smooth easy caulking characteristics.
- C. Sealant to be gray in color.
- D. Acceptable Manufacturers:
 - 1. 3M Fastbond 900
 - 2. Foster 32-14
 - 3. MEI 44-50
 - 4. Hardcast Sure Grip 404
 - 5. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Execute the Work in strict accordance with the best practices of the trade and with these Specifications. Ductwork leakage in excess of SMACNA Standards for the seal class listed will not be acceptable. Seal ductwork with an approved U.L. listed water base sealant as required to comply with this leakage requirement.
- 3.2 Adhere to Drawings as closely as possible. The right is reserved to vary the runs and sizes of ductwork and to make offsets, where necessary to accommodate conditions arising at the building.
- 3.3 Make joints and seams smooth on the inside and a neat finish on the outside. Make duct joints airtight with laps made in the direction of air flow and no flanges projecting into the air stream. Provide ducts adequately braced to prevent vibration. Provide intermediate reinforcing and/or tie rod construction where necessary. Seal joints and seams according to SMACNA Standards.
- 3.4 Construct all longitudinal duct seams and joints as "Pittsburg Lock" or "Button Punch Snap-Lock" at the corners and Acme "Lock Grooved Seam" or "Automatic Seam Weld" in sides between corners. See Figure 1-5 of the SMACNA Manual. Provide sealant as required so that the leakage rates specified are not exceeded. Use Hard Cast CS-1001 sealer or equivalent for use in longitudinal duct seams, and Hard Cast IG-601 or Kingco 10-526 for external application on ductwork joints, or approved equal. Or use an approved equal product from the manufacturers in Article 2.15-D, or an approved product by an approved manufacturer.
- 3.5 On welded stainless steel ductwork, use extra low carbon grade steel (316L). All welds to be pickled to remove weld oxide. Passivate stainless surface after welding to remove embedded foreign material.
- 3.6 Duct sizes indicated for internally lined ducts are the net duct dimensions. Increase ducts in both dimensions by twice the thickness of the liner making the actual sheetmetal dimension larger by thickness of the liner. Provide duct liner material and thickness as specified.

- 3.7 Thoroughly clean the interior of all ductwork after installation, and prior to use. Operate all fans and remove all debris and foreign matter from the duct.
- 3.8 Wherever it may be necessary to make provision for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers. Make all such streamlined sleeves airtight at top and bottom of ducts.
- 3.9 Suspend all ductwork properly supported from the building structure. The duct hanging system is composed of three elements; the upper attachment to the building, the hanger itself, and the lower attachment to the duct. Construct the attachments, hangers and supports for all ductwork in accordance with Figures 4-1 through 4-9 and Tables 4-1 through 4-3 of the 1995 SMACNA Manual. Submit the details for the upper attachment to the building to the Commissioner for review prior to submission to the Engineer.
- 3.10 Provide galvanized angle iron and bands for ductwork bracing and support.
- 3.11 Do not suspend ductwork or any device, or allow work installed by any trade to be suspended from ductwork (for example: lighting conduit, lighting fixtures, piping, ceiling construction, etc.)
- 3.12 Provide supplementary steel as required to support ductwork with a maximum deflection of 0.08" with the supported load acting at the mid-span of the steel.
- 3.13 Prior to mounting or hanging of mechanical equipment and ductwork, obtain approval from the Commissioner for proposed method of mounting and for exact location of all mounting points. Submit weights and location of all mechanical equipment and ductwork to the Commissioner for approval well in advance of general construction work to allow sufficient time for any structural analysis.
- 3.14 Replace, without any additional cost to the contract, any ductwork or components found to be noisy after installation, with said noise resulting from faulty materials or workmanship.
- 3.15 Cap openings in ducts during progress of construction tightly.
- 3.16 Where vermiculite, plaster, wire lath or lead wrapping is required to be applied completely about horizontal runs of ductwork (as indicated on the Drawings), provide all hangers and inserts for such ductwork of extra strength and rigidity to support same. Provide hangers for such ductwork as specified hereinafter except that hanger spacing be one-half that specified.
- 3.17 Provide any ductwork passing through waterproof walls or roof construction with counterflashing.
- 3.18 Provide approved firestopping material around all ducts penetrating floors, walls, roofs, etc., in accordance with local codes, NFPA, and Commissioner's requirements.
- 3.19 **RECTANGULAR SHEETMETAL DUCTWORK**
- A. The ductwork on this project falls into classifications as indicated below. Each classification has positive and negative requirements as shown.

Ductwork	Pressure Classification "W.G."	Velocity Classification	Seal Class
Downstream of fan-powered terminal, pinch down VAV or PRV.	+1"	2500	A

Ductwork	Pressure Classification "W.G."	Velocity Classification	Seal Class
Ductwork on the discharge of air handling units, except outside air handling units.	+2"	2500	A
Outside air and toilet exhaust ductwork on the building side of the volume damper on each floor.	+2" & -2"	2500	A
Outside air makeup and exhaust duct for smoke exhaust systems.	+2" & -2"	2500	A
Outside air handling unit discharge ductwork, risers, and ductwork to the volume damper on each floor.	+3"	4000	A

- B. Comply with the pressure class, seal class and velocity class listed for the construction in each classification. Cross-break or use mechanical transverse beading on rectangular ductwork 12" and wider and install as indicated on the Drawings and as specified. Make beading at least 1/16" deep at the center of the bead and a maximum of 3/8 inch wide at the base of the bead.

3.20 Where tie rods are utilized, provide a fender washer and jam type lock on each side of the sheetmetal. Reinforce ductwork in accordance with SMACNA Table 1-10. Construct ductwork over 96" wide with T-24 type flanged transverse joints with bolted corners. In lieu of using tie rods, this ductwork may be constructed as follows for the size ranges listed if carefully coordinated with all physical space limitations.

Dimension of Longest Side of Duct	Supply or Exhaust	Sheetmetal Gauge	Minimum Reinforcing Size*	Maximum Reinforcing Spacing
96" - 110"	Supply	18	2"	30" CC
111" - 160"	Supply	16	4"	24" CC
161" - 180"	Supply	14	6"	20" CC
181" and Larger	Supply	14	8"	18" CC

* 16 gauge "Z" bar or 12 gauge angle.

Dimension of Longest Side of Duct	Supply or Exhaust	Sheetmetal Gauge	Minimum Reinforcing Size*	Maximum Reinforcing Spacing
96" - 110"	Exhaust	16	2"	24" CC
111" - 160"	Exhaust	14	4"	20" CC
161" - 180"	Exhaust	12	6"	16" CC
181" and Larger	Exhaust	12	8"	14" CC

Dimension of Longest Side of Duct	Supply or Exhaust	Sheetmetal Gauge	Minimum Reinforcing Size*	Maximum Reinforcing Spacing
* 16 gauge "Z" bar or 12 gauge angle.				

- 3.21 Fasten reinforcing to ductwork on 12" centers by bolting or welding reinforcing to the ductwork.
- 3.22 Install duct connected grilles, registers and ceiling diffusers shown on the Drawings. Exact dimensions of openings must await approval of registers and diffusers. Submit exact locations for approval. Do not cut joints for the installation of outlets.
- 3.23 Where possible, fabricate all ductwork in such a manner that seams and/or joints will not be cut for the installation of grilles, registers, or ceiling outlets. If cutting of seams or joints is unavoidable, properly reinforce the cut portion to original strength.
- 3.24 For low pressure ductwork provide air extractors in branch ducts at connection to main ducts.
- 3.25 FLEXIBLE DUCTWORK
- A. Maximum standard length of low pressure flexible duct sections to be 4 feet 0 inches. Length of high pressure duct sections not to exceed 18 inches in length and 16 inches in diameter.
 - B. Flexible ductwork to be rated for the pressure of the system in which it is to be installed.
 - C. Flexible ducts must not extend through partitions, walls, or floors.
 - D. Provide bends with minimum centerline radius equal to two (2) times duct diameter. No more than the equivalent of one (1) 90° bend will be permitted on installed flexible duct.
 - E. Factory fabricate oval ends on spiral aluminum helix flexible ductwork which may be required to connect to various air distribution devices. At the Contractor's option oval ends may be field-fabricated on special mandrels subject to the review of the Engineer.
 - F. Flexible duct clamps of stainless steel with swivel action screw or 100% nylon self-locking clamp for all connections.
 - G. For connection to single diffuser or air troffer boot with flexible duct, use spin-in tap with damper. Provide rigid sheetmetal air plenum boxes on top of diffusers. Connect flexible duct to this box.
 - H. Support flexible duct per SMACNA standards. Do not lay duct on ceiling grid or tiles.
- 3.26 SLOT DIFFUSER BLANKOFFS
- A. Provide blankoffs between all active slots and as indicated on the Drawings. Fabricate the blankoffs of 24 gauge galvanized steel. Paint the blankoffs flat black and cut to fit exactly the space between active slots. Make the blankoff width the same as the width of the supply/return slot diffuser.
 - B. Provide a vertical end plate blankoff at each end of an active supply diffuser length to prevent short circuiting to ceiling.

3.27 DUCT MOUNTED SMOKE DETECTORS

- A. Duct mounted smoke detectors are provided by Division 26 and installed by Division 23. Locate duct mounted smoke detectors in the ductwork in accordance with the manufacturer's recommendations, the requirements of NFPA, and the authorities having jurisdiction.

3.28 FLEXIBLE CONNECTIONS

- A. Flexible connections to be approximately 6 inches long, after installation is complete securely held in place with heavy metal bands to prevent any leakage. Align ductwork and fans to be plumb prior to connection. Allow at least 1 inch of slack.
- B. Provide flexible connection in ductwork connected to the inlets and/or outlets of all air handling units, fans, etc., except fan air handling units with internal isolators and flexible fan connections. Overlap ends of fabric 2" and glue with R-H Products Company, Inc., Number XL8 contact glue, or approved equal. Sewing or stapling will not be permitted. Allow at least one inch slack in all flexible connection installations to insure that no vibration is transmitted. Or use an approved equal product from the manufacturers in Article 2.4-B, or an approved product by an approved manufacturer.

3.29 ACCESS DOORS IN SHEETMETAL

- A. Provide access doors not smaller than 18 inches by 18 inches. Ducts smaller than 18 inches are to be provided with access doors 2 inches smaller than the width by 18 inches long. Provide access to all fire dampers as required by code and local authorities.
- B. Where removable hung ceiling panels are installed below access doors, provide markers showing the access door location clearly.

3.30 AIR CHAMBERS

- A. Butt top edges of vertical panel into the bottom of the horizontal or sloping top panels with the joint fully caulked. Form the interior top and bottom edges of the casing with continuous angle, caulked where it adheres to casing. Form panels occurring at corners of casings to "L" shape so that no joint occurs at such corners. Make vertical and horizontal seams (connecting any panels) with caulked 1½ inches by 1½ inches by ½ inch angles. In addition provide necessary internal structural bracing members.
- B. Caulk joints to make them airtight. Gasket the bottoms of air chambers at the curb to prevent air leakage. Provide knee braces and additional bracing for chamber roofs, as required, to prevent sagging.
- C. Place longitudinal reinforcing angles on the inside of the casing in accordance with the following schedule:

Height of Side Walls or Width of Roof	Number Angles	Angle Spacing
Up to 6 feet	0	--
6 feet to 8 feet	1	Middle
8 feet to 12 feet	2	1/2 points
Over 12 feet	Variable centers	4 feet

- D. Provide angle size of 1½ inches by 1½ inches by 1/8 inch to 12 feet casing length, and 1-3/4 inches by 1-3/4 inches by 3/16 inch over 12 feet casing length.

- E. Size mixed air plenums for air handling units to prevent stratification across coils. Install baffles as required to maintain plus or minus 5°F temperature variation across coil face area.
- 3.31 PLENUMS
- A. Provide standing seams with additional right angle bend and cap with No. 18 gauge galvanized "U" cap galvanized steel plenums for in-line centrifugal and axial flow fans.
 - B. Provide the number of access doors as shown on the Drawings, minimum of one (1), for each sheetmetal plenum.
 - C. Provide drain pan construction for air intake and discharge plenums; apply two (2) coats of mastic sealant to all joints; pitch bottoms for effective drainage.
- 3.32 DUCT SEALANT
- A. Clean and dry all surfaces thoroughly prior to application.
 - B. Apply with caulking gun, trowel or spatula.
 - C. Join surfaces to be sealed immediately after application of sealant.
 - D. Follow manufacturers' instructions carefully for application, storage and cleanup.
 - E. Do not use sealant which is beyond manufacturers recommended shelf life.

END OF SECTION 23 11 13

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SECTION 23 21 23 – PUMPS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide pumps in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. End Suction Base Mounted Pumps.
- B. In-line Pumps.
- C. Condensation Pump Units.

1.3 SUBMITTALS

- A. Submit manufacturer's latest data.
- B. Shop drawing submittals to indicate certified pump curves NPSH, pump performance characteristics with pump and system operating points plotted.

1.4 QUALITY ASSURANCE

- A. Select pumps to operate at or near their point of peak efficiency, allowing for operation at capacities of approximately 25% beyond design capacity. In addition, select the design impeller diameter so that the design capacity of each pump (GPM and TDH) does not exceed 85% of the capacity obtainable with maximum impeller diameter at the design speed for that model.
- B. In order to insure stable operation and to prevent any possibility of hunting, the pump curve must be continuously rising from maximum capacity up to the shutoff point.
- C. Make the entire pump assembly including, but not limited to, the casing or enclosure, suction and discharge flanges, and seals, suitable for operation with the "Pump Working Pressure" and temperatures indicated on the Drawings. For the purpose of this specification, the pump working pressure is defined as the sum of the scheduled maximum suction pressure and the maximum dynamic head at shutoff developed by the pump for pumping duty specified. Test each entire pump assembly hydrostatically at the factory at least 50 psig pressure above the pump working pressure.
- D. Perform a complete factory electric operating and sequence test, capacity performance test, and hydrostatic test for each factory assembled pumping system prior to shipment. Include a system operating flow test from zero to 100% of design flow for the pumping unit with the specification suction and net discharge pressure conditions specified on the Drawings. Verify the accuracy of the system flow meter with an independent calibrated test flow meter. The factory operating and performance test may be witnessed by the Engineer and Commissioner. Notify the Commissioner in writing at least three (3) weeks prior to the factory performance test. Before the pumping assembly is shipped from the factory, transmit certified factory performance test data for factory testing including flow, head, and horsepower at all flow rates on a plot of the system flow test. Certify that the pumps have been satisfactorily tested as specified hereinbefore and are in compliance with the requirements of the Contract Documents. Do not install the pumping system before the test data has been reviewed by the Engineer.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide pressure gauge tap and cock on suction and discharge connection of each pump.
- B. Motors to be of such size that they will operate continuously without exceeding it's H.P. rating, exclusive of service factor, at design capacity and head.
- C. Provide pump casing of close grained cast iron free from blow holes, sand pockets and other detrimental defects. Liquid passageways to be smooth and contoured to permit maximum efficiency. Casing to be designed for working pressure as scheduled and to be hydrostatically tested at 150% of the maximum working pressure. Suction and discharge flanges to be drilled to ANSI standards for operating pressure specified.
- D. Provide on the mechanical seals for each open system water pump, a Dorr-Oliver Type 5 "DOXIE" or approved equal product from the manufacturers in Article 2.1-F. impurity eliminator constructed throughout of 316 stainless steel and suited to the system scheduled working pressure, or approved equal. Factory pipe the impurity eliminator and provide with isolating ball valves and valved bypass piping. Piping to be Schedule 40 galvanized steel pipe.
- E. The impeller supplied for the specified conditions to limit shaft deflection at the seal to no more than .002 inches.
- F. For vertical, horizontal split, in-line, and end suction pumps, acceptable manufacturers are:
 - 1. Armstrong
 - 2. Bell & Gossett
 - 3. Buffalo Pump
 - 4. Weinman
 - 5. Paco
 - 6. Peerless Pump
 - 7. Ingersoll Dresser
 - 8. Or Approved Equal

2.2 END SUCTION BASE MOUNTED PUMPS

- A. Provide end suction, vertically split case centrifugal type pumps.
- B. Pump casing to be fitted with a bronze replaceable wearing ring.
- C. Pump shaft to be stainless steel of a size and design to limit shaft deflection at the seal to no more than .002 inches.
- D. Seal the pump liquid cavity with a face type mechanical seal with Ni-Resist stationary seat, carbon washer, ethylene propylene flexible members, brass metal parts and stainless steel spring. Seal to be mounted over a bronze shaft sleeve.
- E. Couple the pump flexibly to a NEMA frame ODP electric motor. Motor and pump bearing to be grease lubricated and sized for a minimum of 100,000 hours average bearing life. Motor and pump to be aligned and mounted on a steel base. Provide a coupling guard.
- F. Mount pump and motor on a common fabricated structural steel base furnished by the pump manufacturer. Provide in the base provisions for grouting and anchor bolts. Machine surfaces for the motor and pump mounting. Motor mounting to permit horizontal adjustment. Provide the base of sufficient strength to prevent vibration, warping, or misalignment of the pump and motor when installed without grouting.

2.3 IN-LINE PUMPS

- A. Provide vertical in-line bronze fitted, single stage, centrifugal pumps, close-coupled to a ball-bearing, drip proof totally enclosed NEMA standard vertical electric motor.
- B. Models 3 inch and larger to have balanced double volute design to minimize radial shaft deflection. Suction and discharge connections to be the same size, flanged 125 PSI rating, 180 degrees opposite on centerline for pipeline mounting. Casing to have bronze replaceable wear ring. Impeller to be bronze, enclosed, statically, dynamically, and hydraulically balanced. Motor shaft to be one-piece stainless steel. Pump to have mechanical shaft seal of the Ni-Resist type, or approved equal product by the manufacturers in Article 2.1-F, and be properly vented to the suction connection.
- C. When in-line pumps are horizontally mounted, support them from overhead.

2.4 CONDENSATION PUMP UNITS

- A. Provide ½ gallon nylon tank with float operated switch.
- B. Pump to be cast aluminum with epoxy coating and ¼" MNPT discharge connection.
- C. Motor to be 120 volt, 1/10 horsepower.
- D. Overall height to be maximum of 6".
- E. Manufacturer to be Hartell, Little Giant, Bell & Gossett, or an approved manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

- A. Rigidly bolt the pump base to the vibration isolation base and fill with concrete or grout after installation on the isolation base. After final alignment, dowel all pumps and motors 25 horsepower and over to the base. All vertically mounted pumps to be doweled into place after final alignment.
- B. The pump manufacturer to be responsible for aligning in the field prior to startup of flexibly coupled pumps. Alignment to be with dial indicator with accuracy of plus or minus .002 inch. The pump manufacturer must submit a written report certifying that the alignment work has been performed by his personnel and that the pumps are ready for operation.
- C. Pumps to be leveled up on tapered steel wedges in such manner to permit a minimum of 3/4 inch of grout between the pump base and the top of the concrete base.
- D. Pump motors are to be covered during construction period and if the motor has to be run the Mechanical Contractor will be responsible to make sure that the area in which the motor is running is clean.
- E. Mechanical Contractor to provide lifting eye ring above each vertical in-line pump to facilitate removal of motors for repair.
- F. Paint the entire assembly of each pump with two coats of enamel after shop testing.
- G. All operating controls and safety devices must be demonstrated after each system has been installed and put into operation at the project site.

- H. Provide drains for bases and stuffing boxes piped to discharge into floor drains.
- I. Provide air cock and drain connection on horizontal pump casings.
- J. Provide pumps with bronze mesh start-up strainers. Mechanical Contractor to remove fine mesh strainer after system has been flushed.

END OF SECTION 23 21 23

SECTION 23 25 00 – PIPE CLEANING AND CHEMICAL WATER TREATMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide flushing, cleaning and chemical treatment program in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipe Cleaning.
- B. Cleaning Chemicals.
- C. Water Treatment Chemicals.
- D. Chemical Feed Equipment.
- E. Water Treatment Testing Equipment.
- F. Water Treatment Services.

1.3 SUBMITTALS

- A. Submit shop drawings listing chemicals and services provided for all systems. Provide layouts of feeding equipment, details of equipment and describing treatment program, including calculations and quantities of chemicals to be used. Provide system schematics showing the following:
 - 1. Condenser Water System:
 - a. circulation rates
 - b. pressures
 - c. temperature differentials across cooling tower and condenser
- B. Provide written report containing log and procedure of system cleaning, giving times, dates, problems encountered and condition of water.
- C. Submit written report containing results of tests and list of chemicals updated every 14 days during temporary use of treated systems.
- D. Provide inspections and submit written reports on a twice monthly basis. Provide for one (1) year after acceptance of system. Take samples of water at each inspection, analyze, and certify. Submit the analysis made on the water to the Engineer and the Commissioner. Include in the analysis report, recommendations as to any changes in water treatment required. Provide an initial dosage of 1.5 gallons of an aqueous solution of sodium nitrite base corrosion inhibitor (Nalco 2536), or approved equal, for each 100 gallons of water in the system.
- E. Provide written maintenance instructions to be included in Maintenance and Operating Manual.

1.4 QUALITY ASSURANCE

- A. Retain a chemical company, to provide water treatment, feed equipment, testing equipment and chemicals for the systems as defined herein and as may be required to maintain the integrity of the piping systems and mechanical equipment.
- B. The water treatment chemical and service supplier must be a recognized specialist, active in the field of industrial water treatment for at least three (3) years, whose major business is in the field of water treatment, and who has full time service personnel within the proximity of the job site. Laboratory facilities must be available.
- C. Furnish and install all equipment and material on this project in accordance with the requirements of the authority having jurisdiction, suitable for its intended use on this project, approved by the U.S. Environmental Protection Agency (EPA), and local Department of Environmental Protection, and so certified by the manufacturer.
- D. Analyze water from the local water company to be used on the project, before establishing treatment procedures.
- E. Provide a two-hour orientation course to the City of New York's operating personnel, instructing them clearly and fully on the installation, care, maintenance, testing and operation of the water treatment system. Arrange the orientation course at the startup of the system.
- F. Treatment Standards
 - 1. Closed Recirculating Water Systems:

System	Treatment and Chemical Conditions	Control Level
Glycol and Closed Condenser Water 140°F maximum	Non-toxic organic corrosion and scale inhibitor	2000 ppm as total organic inhibitor
	Molybdate as Na ₂ MoO ₄ or Nitrite as NO ₂	200-300 ppm 500-700 ppm
	pH	7.0-9.0

PART 2 - PRODUCTS

2.1 PIPE CLEANING

- A. Furnish all required pipe cleaning chemicals, chemical feed equipment, materials, and labor necessary to clean the piping as herein specified. In addition, permanently install necessary chemical injection fittings complete with stop valves and coupon racks, etc.
- B. Provide a pre-startup non-foaming, liquid detergent dispersant cleaner for cleaning of all systems to remove oil and foreign matter from the piping and equipment prior to the final filling of the systems. Use a chemical that is not injurious to persons, piping, pipe joint compounds, packings, coils, valves, pumps and their mechanical seals, tubes or other parts of the system.
- C. Furnish instructions dictating the quantities of the cleaner to use, methods and duration of the operation.

2.2 WATER TREATMENT CHEMICALS

- A. Provide one-year's supply of necessary water treatment chemicals including the following:
1. Closed System Treatment (Closed Condenser Water): Agents to reduce scale deposits, to adjust pH and to inhibit corrosion. Treatment shall not contain any chromates or other toxic substances.
 2. Propylene Glycol:
 - a. Provide a glycol solution where indicated on the Documents which will provide freeze protection to -20°F.
 - b. The fluid must be an industrially inhibited propylene glycol (phosphate-based). Specifically excluded are automotive antifreezes or any formulations containing silicates.
 - c. The fluid must be easily analyzed for glycol concentration and inhibitor level, and easily reinhibited using inhibitors readily available from the fluid manufacturer.
 - d. Fluid must be dyed a fluorescent color to facilitate leak detection.
 - e. If the system contains more than 250 gallons of fluid, annual analysis must be provided free of charge by the fluid manufacturer. Manufacturer must also provide convenient analytical test aids for use by the operator of a smaller system.
 - f. The fluid must pass ASTM D1384 (less than 0.5 mils penetration per year for all system metals).

2.3 CHEMICAL FEEDING EQUIPMENT

A. Closed Recirculation Water Systems

1. Provide across the recirculating pump, a bypass feeder rated for system operating working pressure with 2-inch fill line and cap of the following capacity:

System	Feeder Size
Up to 1000 gpm	5 gal.
1000 to 4000 gpm	10 gal.
Above 4000 gpm	18 gal.

2. Provide a hand-operated injection pump for initial injection of corrosion inhibitor.

B. Closed Recirculation Water Systems

Provide and install an Automated Control System. As a minimum, this control system must accomplish the following:

1. Feed inhibitor chemicals in proportion to makeup water, flow measured by a contact head water meter.
2. Must be completely adjustable to deliver 0.5 to 2.0 times the amount of normal dosage to keep inhibitor level in range.
3. Pump pressure must be rated 1.3 times the normal system operating pressure.
4. Meter must be full flow sized to the make-up water line.

C. Glycol Systems

1. Provide a 50-gallon glycol bypass feeder system capable of delivering glycol at 1.5 times the system pressure. System must be pre-wired, with a pre-piped flow assembly which

includes a pressure switch and relief valve, and a low liquid level switch. Tank must be mounted on a painted steel frame with a polyethylene tank. Pumps must be included.

2.4 WATER TREATMENT CONTROL TESTING EQUIPMENT

- A. Provide test equipment described hereinbefore and as follows:
1. Supply a one-year's quantity of testing chemicals to properly analyze the treated water for pH, molybdate, chlorine, nitrite, phosphate and sulfite. Furnish the necessary test kits for these tests complete with instruments, reagents, materials and supplies.
 2. Provide a conductivity meter, 0-2500 range, MICROMHOS/CM auto-temp compensation 50°-160° F, with 9-volt transistor batteries.
 3. Furnish a supply of log sheets on which to record the test results and bound copy of full test instructions.
 4. Provide and install a corrosion coupon test rack as directed with four (4) insert positions for steel and copper coupons furnished by the water treatment company, and to be inspected every 90 days. Test rack to comply with ASTM D-2688 Method B.

2.5 ACCEPTABLE MANUFACTURERS

- A. Water treatment program to be provided and maintained by:
1. Tower Water Management
 2. Nalco
 3. Metropolitan Refining Co.
 4. Hayes-Trane, Mogul
 5. Tenco.
 6. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Install all equipment, chemicals, water devices, etc. in accordance with water treatment specialist's directions and drawings, for all systems previously noted. Contractor will provide 1-inch taps to bring system water to desired locations. Minimum 2 on each main supply and return on closed loop systems. Minimum 4 on each main supply and return on open loop systems.
- B. pH adjustment, inhibitor and dispersant tanks shall be shipped in use containers. Pump suction assemblies previously specified will pump directly from these shipping drums.
- C. Installation and startup shall be supervised by factory representatives of the equipment manufacturer and chemical manufacturer.
- D. Shipping containers shall be disposed of or refilled off the premises at no additional cost.

3.2 WATER TREATMENT PROGRAM

- A. Obtain an approved representative sample of the water supply and perform the following analyses:

Analysis	Submittal Concentrations
Sodium	ppm as Na
Silica	ppm as SiO ₂
Calcium	ppm as Ca
Magnesium	ppm as Mn
Iron and aluminum oxides	ppm as Fe ₂ O ₃ AL ₃ O
Bicarbonates	ppm ca CaCO ₃
Carbonates	ppm as CL
Phosphates	ppm as PO ₄
Carbon dioxide (free CO ₂)	ppm
Total hardness	ppm as CaCO ₃
Total dissolved solids	ppm
Suspended solids	ppm
Free acid	ppm as CaCO ₃

- B. Based on this analysis prepare and submit a water treatment program for approval.

3.3 PRELIMINARY CLEANING

- A. Clean new piping internally by flushing prior to the application of pressure tests, and before the chemical cleanout procedures specified herein. Provide temporary strainers at the inlet to the chilled water, condenser water, and hot water pumps before the start of cleaning procedures.
- B. Block off and isolate circulating pumps, cooling coils, heating coils, heat exchangers, and steam traps during the preliminary flushing and draining process.
- C. Provide temporary by-passes to fully circulate through all branch piping.

3.4 PIPE CLEANING

- A. All Piping Systems
1. Provide temporary connections with valves to fill and drain the piping and equipment after completion of the chemical cleanout procedure. Provide temporary blind flanges and/or caps to isolate the piping and equipment.
 2. Provide temporary piping connections, valves, strainers, bypasses, and blank connections where required to clean out systems.
 3. After each hydrostatic leak testing procedure is complete, drain the system until empty. The piping systems are internally chemically treated and protected during the hydrostatic

testing procedure as described in the Section entitled "Testing, Balancing and Adjusting". Thoroughly clean the piping and flush as follows:

- a. Cleaning will not take place more than 14 days prior to startup. Give the chemical manufacturer's representative at least 30 days' notice prior to startup.
- b. Prior to the start of the chemical cleaning procedure submit three - two (2) foot lengths of the piping installed on this project to the chemical manufacturer for analysis of the interior coating on the piping. Refer to the Section entitled "Testing, Balancing and Adjusting" for additional requirements.
- c. Before the chemical cleaning procedure is begun, install in each closed recirculating water system a temporary skid mounted portable side stream filtering system. The filtering assembly shall have 6" flanged connections and multiple cartridge filters capable of at least 600 gpm, an integral Barco type flow venturi, and be pressure rated for the system to which it is connected. Install the filter cartridges and change out until the system is clean. Initially provide twenty (20) micron cartridges, the intermediate set five (5) microns, and the final set one (1) micron.
- d. Add chemical pipe cleaning compound and corrosion inhibitor as recommended by the chemical manufacturer's representative to the system simultaneously with the filling of the system.
- e. Circulate the cleaning compounds in the system for the time period specified by the chemical manufacturer.
- f. Drain the system until empty from its lowest point.
- g. Fill the system again with fresh water and flush thoroughly until clean water is obtained. (Maintain continuous blowdown and make-up as required during flushing operation). Use a one (1) micron cartridge type strainer element at end of drain hose to confirm that discharge water is free of foreign material.
- h. The cleaning and flushing procedure must be approved in writing by the chemical manufacturer. The chemical manufacturer's representative shall supervise and certify in writing the cleaning and flushing of the piping systems. The Contractor shall provide and install injection pumps, water meters, and coupon racks to control and monitor the cleaning process.

B. Supplemental Cooling Systems

1. Fill system completely.
2. Use a high surfactant cleaner. Install recirculator on the furthest ends of the riser.
3. Insure that riser valves are secure.
4. Circulate water with high levels of cleaner for appropriate time: (Circulation Rate = 50 GPM).

a.	System	Volume	Time
b.	50-250	Gallons	.5-1.5 hours
c.	250-750	Gallons	1.0-2.0 hours
d.	750-2500	Gallons	2.5-3.5 hours
e.	2500-5000	Gallons	4.0-6.0 hours
5. Test system pH at 30 minute intervals, pH should be above 10.0 while cleaning is taking place. Add more chemicals, to keep pH level. Have anti-foam on-site to prevent pump cavitation.
6. Flush entire system with fresh water to reduce pH within 0.5 pH of incoming water and test system pH, conductivity, alkalinity, iron, copper, and phosphate.
7. Treat with water treatment chemicals at three (3) times the normal dosage.
8. Clean and flush circulator.

3.5 FILLING OF WATER SYSTEMS

- A. After completion of chemical cleanout, fill each water system with fresh water, air vent, and immediately add chemical treatment to passivate metal.

3.6 Furnish the following chemicals as required for the system until the Commissioner has issued a "Certificate of Substantial Completion":

- A. pH Adjustment Chemicals: Provide suitable pH adjustment chemicals in 50 gallon drums to control pH at the 7.8-8.8 level.
- B. Corrosion Inhibitor: Provide non-polluting corrosion inhibitor which complies with local regulations covering waste water discharge, and as permitted by the local authorities having jurisdiction.
- C. Dispersant: Provide non-polluting dispersant which complies with local regulations covering waste water discharge, and as permitted by the local authorities having jurisdiction.
- D. Biocide: Provide both oxidizing and non-oxidizing biocide. Provide non-polluting biocide which complies with local regulations covering waste water discharge, and as permitted by the local authorities having jurisdiction.
- E. Recommend pH adjustment chemical, corrosion inhibitor, dispersant, and biocide for the local water characteristics.

3.7 TECHNICAL SERVICE AND CONTROL

- A. Insulate water treatment piping and tanks containing chilled water, hot water and steam in accordance with insulation material as specified for the respective system.
- B. Wherever possible, all water treatment equipment is to be located in mechanical equipment room.
- C. For a period of one year after startup of system, be on call at no additional cost to the Commissioner to make on-site inspections of equipment during scheduled or emergency outages in order to properly evaluate their effect on the water treatment program.
- D. During the First 3 Months provide monthly on-site testing, adjusting, recommendations, and reports during system operation. Including testing for iron, copper, phosphate, inhibitor, pH, conductivity, and bacteria in all system.
- E. Provide monthly servicing of pumps and control equipment.
- F. Corrosion coupon removal and replacement, every 60 days for Copper and Steel.
- G. Bacterial Analysis - Monthly on open systems. (Dipslide analysis).
- H. Provide orientation seminar to include.
 - 1. Safety and Chemical Handling.
 - 2. Testing and Adjusting Procedures.
 - 3. Basic Water Treatment.
 - 4. Water Treatment for Management.
- I. Provide monthly written chemical and testing inventory.

- J. Provide monthly testing equipment calibration.
- K. Water meter readings are to be logged in manuals from both controller and meters.
- L. Copies of all correspondence, testing, coupon studies, etc., will be left on site in a manual used only for water treatment and sectioned accordingly.
- M. The program should provide the following results:

	Open Recirculation	Closed Recirculation
Mild Steel Piping	2.0 mpy No pitting	0.2 mpy No pitting
Copper Piping	0.1 mpy No pitting	0.05 mpy No pitting

- N. Provide complete operation manual including the following sections:

1. Field Reports
2. Logsheets
3. Analytical
4. Orientation
5. Correspondence

- O. Provide Material Safety Data Sheets posted at each drum.

3.8 GLYCOL SOLUTIONS

- A. Clean new lightly corroded existing systems with a 1% to 2% solution of trisodium phosphate in water prior to the installation of industrially inhibited glycol fluid.
- B. Clean extensively corroded systems using the services of an industrial cleaning company. Make all necessary replacements and repairs.
- C. Use only good quality water in solution with the glycol fluid. Use water with low levels (fewer than 25 ppm each) of chloride and sulfate; and fewer than 50 ppm each of hard water ions (CA⁺⁺, Mg⁺⁺) with total hardness not to exceed 100 ppm. Distilled or deionized water is recommended. If good quality water is unavailable, purchase pre-diluted solutions of industrially inhibited glycol fluid from the fluid manufacturer.

END OF SECTION 23 25 00

SECTION 23 26 00 – WATER SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide water specialties in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Air Vents.
- B. Air Separators.
- C. Relief Valves.
- D. Strainers.
- E. Suction Diffuser.
- F. Expansion Tanks.

1.3 SUBMITTALS

- A. Shop Drawings: Submit shop drawings prior to manufacture. Do not proceed with fabrication of equipment until fully approved shop drawings have been returned.
- B. Product Data: Submit manufacturer's latest published data indicating rating data, catalog cuts, model numbers, dimensional information, and pressure drops.

1.4 QUALITY ASSURANCE

- A. Comply with all governing Federal, State and local codes and all regulations of authorities having jurisdiction.
- B. Comply with the applicable requirements of ASME, ANSI, U.L., ASTM and National Electric Code.

PART 2 - PRODUCTS

2.1 AIR VENTS

- A. Provide air vents with 3/4" IPS inlet connection and 3/8" outlet, suitable for the system and for the system working pressure and temperature. Design vents to eliminate air from the system automatically without permitting the passage of water. Construct vents of brass body, copper float and stainless steel valve parts.
- B. Acceptable Manufacturers
 - 1. Bell & Gossett
 - 2. Sarco
 - 3. Hoffman
 - 4. Amtrol
 - 5. Armstrong

6. Or Approved Equal

2.2 AIR SEPARATORS

A. In-Line Air Separator

1. Furnish and install a horizontal in-line air separator designed to effectively separate free air in water systems. Construct the air separator of heavy duty cast iron designed to function satisfactorily at working pressures up to 175 PSI and liquid temperatures up to 300°F. Provide an integral weir designed to decelerate system flow to maximize air separation.

B. Acceptable Manufacturers

1. Bell & Gossett
2. Amtrol
3. Armstrong
4. Or Approved Equal

2.3 RELIEF VALVES

- A. Provide diaphragm operated safety relief valve, ASME labeled, for relieving pressure. Refer to Drawings for pressure rating of valve and relief setting. Discharge water to be through NPT connection.

- B. Provide valve with a low blow-down differential constructed of bronze or iron body. The valve seat and all moving parts exposed to fluid will be of non-ferrous material.

C. Acceptable Manufacturers

1. Bell & Gossett
2. Amtrol
3. Armstrong
4. McDonnell & Miller
5. Kunkle
6. Or Approved Equal

2.4 STRAINERS

- A. Provide "Y" pattern iron body water strainers for the pressure ratings as described herein. Strainers to be self-cleaning with screen free area a minimum of three times the inlet pipe area. Provide strainer basket cleanout cap with tapping to permit connecting of blow-down valve.

- B. The following Sarco model numbers are provided to establish a minimum standard:

1. 150 psig up to 2" - "Y" pattern, Type IT with 20 mesh stainless steel screen with screw ends.
2. 150 psig 2½" to 12" - "Y" pattern, Type IF-125 with .125" perforations, stainless steel screen, flanged ends.

C. Acceptable Manufacturers

1. Sarco
2. Hoffman
3. Crane
4. Zurn
5. Mueller

6. Armstrong
7. Or Approved Equal

2.5 SUCTION DIFFUSER

- A. Provide suction diffusers to consist of angle type body with straightening vanes and combination diffuser-strainer-orifice cylinder with 3/16" diameter openings. Provide a permanent magnet located within the flow stream and removable for cleaning. Equip the orifice cylinder with a start-up disposable fine mesh strainer. Design orifice cylinder to withstand pressure differential equal to pump shutoff head and a free area equal to five times cross section area of pump suction opening. Straightening vanes shall extend the full length of the orifice cylinder and be replaceable. Provide unit with adjustable support foot to carry weight of suction piping.
- B. Acceptable Manufacturers
 1. Bell & Gossett
 2. Armstrong
 3. Taco
 4. Or Approved Equal

2.6 EXPANSION TANKS

- A. Furnish and install a diaphragm type hydro-pneumatic expansion tank especially designed for use on the services specified. Construct the compression tank of welded steel and equip with a butyl flexible diaphragm to maintain a separation between the system water and the air cushion. Provide with bottom inlet connection for all water systems. Each tank shall bear an appropriate ASME label for the following minimum working pressures and temperatures:
 1. Building Closed Condenser Water System: 125 psig - 100°F.
- B. The minimum total tank volume and acceptable volume to be as specified on the Drawings. Provide a factory initial charge of 15 psig.
- C. Provide suitable structural support as required for each tank as indicated on the Drawings.
- D. Provide for each tank, lifting lugs, base ring, drains, N2 charging connections, piping connections, and specialties as required and indicated on the Drawings. Provide one (1) bottle of N2 and manifold to be used to charge all tanks. Each tank shall have an ASME relief valve set at the appropriate pressure.
- E. Provide a U.L. listed mercoid (or equivalent) Series DA31-153-7 pressure switch operated by a brass bourdon tube activating a mercury switch. This switch to activate a low pressure alarm as indicated in the Controls Specification.
- F. Paint the outside of the tank with a shop coat of approved rust inhibiting primer after fabrication.
- G. Acceptable Manufacturers
 1. Bell & Gossett
 2. Amtrol
 3. Taco
 4. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Provide automatic air vents at high points of all piping and as required for removal of air from the system using 3/4" steel pipe suitable for the pressure service between the main pipe and inlet. Provide 3/8" OD hard drawn Type L copper tubing from vent outlet for overflow in case of defective action. Copper tubing shall run into a suitable drain. When vents are located above hung ceilings, connect all vent drains to a common drain main and pipe to nearest slop sink or floor drain. Provide 3/4" stop valve in the inlet line for servicing of automatic air vent. Manual vents may be substituted for automatic vents, at system high points, only as directed by the Engineer.
- 3.2 Provide at each heat transfer element supplied with water, not less than one 1/2" manual air vent. Furnish ten (10) keys.
- 3.3 Provide manual air vent valves in the piping connections to each condenser water coil (both supply and return where such are not automatically vented). Provide a 1/4" vent line from each air vent to nearest floor drain, or as directed, to suit job conditions. At Engineer's discretion, provide soft temper copper tube pigtail on manual vents, in lieu of 1/4" vent line, so that vent can be discharged into a bucket.
- 3.4 Install relief valves in upright position with discharge piped to nearest floor drain.
- 3.5 STRAINER INSTALLATION
- A. On open systems, install strainers immediately upstream of each automatic control valve with the same size as the inlet pipe indicated on the drawings, not reduced size serving the control valve.
 - B. Provide approved valved dirt blowout extensions on each strainer. Locate each blowout valve at hand-height.
 - C. Clean the strainers as necessary until accepted by Commissioner.
 - D. Provide temporary strainer in the suction line of each pump during construction, testing and balancing. Replace with permanent strainers after acceptance by the Commissioner.
 - E. Minimum strainer body at pump inlet connections: 3 inch.
 - F. Prior to installation, disassemble strainer, coat with Never-Seez, or approved equal and reassemble. Or use an approved equal product from the manufacturers in Article 2.4-C.
 - G. Install strainers with ample space for basket removal. Where shown on the Drawings, provide quick opening 1" blow-off valve with hose bibb end.
- 3.6 Install suction diffusers on pump inlets with ample space for basket removal. Where pumps are mounted on inertia pads, suction diffuser will be supported with steel pipe section on inertia pad. All other installations, the suction diffuser will be supported by steel pipe section and a neoprene pad 1" thick. Remove start-up strainer after start-up and pipe cleaning has been accepted by Commissioner.

END OF SECTION 23 26 00

SECTION 23 27 10 – DRY COOLERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide dry coolers in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Dry Cooler.
- B. Control Panel.
- C. Expansion Tank.

1.3 SUBMITTALS

- A. Manufacturer's latest product data, including dimensions, performance characteristics, and installation instructions.
- B. Acoustical performance.
- C. Factory performance test results.

1.4 QUALITY ASSURANCE

- A. Performance test units at the factory prior to shipment.

PART 2 - PRODUCTS

2.1 DRY COOLERS

- A. Provide low-profile, propeller fan dry coolers to match the requirements of the chillers or air conditioning units to which they are connected.
- B. Construct dry cooler coil of copper tubes expanded into continuous, rippled aluminum plate fins, with Type L headers, mounted to allow for expansion.
- C. Construct casing of corrosion resistant aluminum; divide fan sections with full-width baffles. Mount on galvanized steel support members. Provide aluminum legs.
- D. Construct fans of zinc-plated steel or aluminum. Balance fans statically and dynamically at the factory. Provide fan guards of close-meshed steel wire with corrosion-resistant finish.
- E. Equip variable speed fan motors with rain slingers and permanently sealed ball bearings. Include overload protection.
- F. Provide integral factory-wired control panel. Install solid state fan speed transducer which will sense leaving glycol temperature and modulate fan speed to maintain design condition.
- G. Provide open expansion tank.

- H. Provide control interlock with the associated air conditioning unit to indicate an alarm condition if the lead pump or the dry cooler fail.

2.2 ACCEPTABLE MANUFACTURERS

- A. Liebert
- B. Above Air
- C. EVAPCO
- D. Or Approved Equal.

PART 3 - EXECUTION

NOT USED.

END OF SECTION 23 27 10

SECTION 23 33 13 – DAMPERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide dampers in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fire Dampers.
- B. Combination Fire/Smoke Dampers.
- C. Combination Heat/Smoke Dampers.
- D. Smoke Dampers.
- E. Volume Dampers.
- F. Splitter Dampers.
- G. Backdraft Dampers.
- H. Automatic Damper Installation.
- I. Positive Seal Dampers.

1.3 SUBMITTALS

- A. Submit complete manufacturers data on all dampers required by this section, including sizes, location, quantity and construction details.
- B. Submit samples of dampers as requested by the Engineer.

1.4 QUALITY ASSURANCE

- A. Fabrication testing and installation to be in compliance with U.L., NFPA and local authorities. Fire dampers to be U.L. labeled for 1½ or 3 hour rating as indicated on the Drawings. Refer to architectural drawings for fire ratings of slabs and partitions being penetrated.
- B. Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Details and details as shown on the Drawings.
- C. For positive smoke control, dampers shall conform to U.L. Standard 555S.

PART 2 - PRODUCTS

2.1 FIRE DAMPERS

- A. Provide fire dampers in ducts piercing fire rated walls, and floors, as required by NFPA, local codes and local authorities having jurisdiction. All fire dampers are to comply with latest UL-555 Standard.
- B. Fire dampers designated as FD on the Drawings are 1½ hour rated; FD-3 are 3 hour rated. Dampers to be of the curtain type with frames of 18 gauge steel and blades of 21 gauge steel. All dampers shall be approved for use in dynamic systems. Dampers to be stainless steel spring loaded for closure. Provide U.L. rated 160°F 215°F fusible link. Dampers must lock in closed position.
- C. Fire dampers designated as FD-H on the Drawings are operated through an integrally mounted heat sensor in lieu of a fusible link. These dampers will be wired for 24 volt operation.
- D. Acceptable Manufacturers
 - 1. Ruskin
 - 2. Imperial
 - 3. Prefco
 - 4. Or Approved Equal

2.2 COMBINATION FIRE/SMOKE DAMPERS

- A. Provide combination fire/smoke dampers as shown on the Drawings in ducts piercing fire rated walls and floors, and where shown on the Drawings.
- B. Provide normally closed dampers that are fusible link electronically. Provide factory-mounted U.L. approved actuators, relays and damper position switches.
- C. Dampers to be of opposed multi-blade construction and classified in accordance with U.L. Standard 555 and 555S in all respects including size limitations. Use Class 1 dampers, with maximum leakage of 4 cfm/sq.ft., in ducts with velocities at or over 2000 FPM, and Class 2 dampers, with maximum leakage of 10 cfm/sq.ft., in ducts with velocities under 2000 FPM, unless noted otherwise on the Drawings. Minimum size Class 1 damper, 12 x 12. Minimum size Class 2 damper, 9 x 9.
- D. Damper construction to be minimum 16 gauge galvanized steel frame and blades. Side seal to be Type 304 flexible stainless steel with bronze or stainless steel shaft bearings in end plate. Damper linkage to be outside air stream.
- E. Provide dampers designated as "FSD-FL" with a fusible link which will close and lock damper on increased air temperature over 165°F.
- F. Provide dampers designated as "FSD" and "FSD-3" with an electrically resettable link which will close and lock damper on increased air temperature over 165°F. The link to be manually resettable at the damper linkage without need of link replacement. Provide damper position indicator external of damper.
- G. Provide dampers designated as "FSD-HS" and "FSD-HS3" as normally closed and provided with a means of automatically opening dampers remotely from the Fire Command Center when the air temperature is below the damper linkage degradation temperature of 250°F 350°F. This will be accomplished by

1. a thermal link which will disengage the damper actuator at or above the degradation temperature of the damper. The release of the link will cause the damper to close and lock until the link has cooled to below the degradation temperature. Activation of the actuator will re-engage the damper linkage in this situation.

OR

2. a dual heat sensor, one set at 160°F and one set at degradation temperature. The first sensor will be bypassed on temperatures below the degradation temperature, on a signal from the Fire Command Center. The second sensor will be in series with this signal and prevent damper opening if temperatures exceed the damper degradation temperature. Provide dampers with position indicator switches to provide remote status of open or closed positions.
- H. Provide dampers designated as "FSD-RA" as normally open and provided with a means of maintaining damper closed during "normal" situations. Provide means to automatically open dampers remotely from the fire command center, or as described in the controls specification.
- I. Acceptable Manufacturers
1. Ruskin
 - a. Model FSD35 (Class 2)
 - b. Model FSD60 (Class 1)
 - c. Model FSD31 (3 hour)
 2. Imperial
 - a. Model 770 (FSD Class 2 only)
 - b. Model 710 (FSD-HS or FSD Class 2 only)
 3. Nailor-Hart
 4. Air Balance
 5. Arlan
 6. Or Approved Equal

2.3 COMBINATION HEAT/SMOKE DAMPERS

- A. Provide combination heat/smoke dampers designated as "HSD" on the Drawings in ducts which are used for venting of shaftways, stairwells, elevator hoistways, etc.
- B. Construct dampers as described for combination fire/smoke dampers except that dampers will be normally open.

2.4 SMOKE DAMPERS

- A. Provide smoke dampers as shown on Drawings designated as "SD".
- B. Dampers are to be electrically operated. Provide factory-mount UL listed actuators, relays and damper position switches provided by Section 23 09 23.
- C. Provide dampers of opposed multi-blade construction Class 2, with maximum leakage of 10 cfm/sq.ft. at 1" w.g. when in the closed position for ducts with velocities of 2000 FPM or less, and Class 1 with maximum leakage of 4 cfm/sq.ft. at 1" w.g. for ducts with velocities over 2000 FPM. Minimum size Class 1 damper, 12 x 12. Minimum size Class 2 damper, 9 x 9.

- D. Damper construction to be minimum 16 gauge galvanized steel frame and blades. Side seal to be Type 304 flexible stainless steel with bronze or stainless steel shaft bearings in end plate. Damper linkage to be outside air stream.
- E. Provide dampers with means of remote opening from the Fire Command Station and with position indicator switches to enable remote status of open or closed positions.
- F. Acceptable Manufacturers
 - 1. Ruskin Model SD60 (Class 1) Model SD36 (Class 2)
 - 2. Imperial Model 620 (Class 2 only)
 - 3. Nailor-Hart
 - 4. Air Balance
 - 5. Arlan
 - 6. Prefco
 - 7. Or Approved Equal

2.5 VOLUME DAMPERS

- A. Provide volume dampers as shown on the Drawings and as required for proper balancing and distribution of air, in the various branches of the ductwork for use in balancing the system. Dampers to be installed separately and independently of the registers hereinafter specified to be set behind supply, return and exhaust air grilles. Provide multi-blade dampers in ducts above 24 inches in width or 16 inches in height. Coordinate with the air balancing subtrade specialist and provide all additional dampers required for proper air balance.
- B. Provide volume dampers of the quadrant type, of heavy construction, pivoted to turn easily and provided with approved operating and locking devices mounted on outside of the duct in an accessible place.
- C. For all volume dampers located above inaccessible ceilings, provide remote cable operators. Anemostat type OB-ASL complete with fastening device and hex key operator.

2.6 SPLITTER DAMPERS

- A. Provide SMACNA Standard splitter dampers for ductwork smaller than 28 inches in width. Operators for dampers above plaster or drywall ceilings to be Young Regulator Co. No. 895 with No. 1200 gear operator.

2.7 BACKDRAFT DAMPERS

- A. Provide balanced, tight closure, 1/8-inch thick aluminum backdraft dampers of the self-operating type where indicated on the Drawings. Fabricate damper frames from extruded aluminum with mitered corners. Blades to be extruded aluminum with extruded vinyl edge seals. Blade/frame assembly to be weather resistant with blades overlapping the frame. Damper bearings to be bronze oilite nylon or cyclohex. Provide bird screen over opening.
- B. Acceptable Manufacturers
 - 1. Ruskin
 - 2. Prefco
 - 3. Arlan
 - 4. Or Approved Equal

2.8 AUTOMATIC DAMPER

- A. Install all automatic dampers being supplied by Section 23 09 23.

2.9 POSITIVE SEAL DAMPERS

- A. Construct positive seal dampers of the disc type with linear stroke operators complete with pneumatic motors.
- B. Maximum leakage factor in the closed position is 0.001% of the normal rated air flow at 4" static pressure differential across the damper. Straight blade type dampers are not acceptable.
- C. Provide extruded neoprene gaskets to seal all mating surfaces. Provide field replaceable gaskets which carry a 10 year material replacement warranty.
- D. Construct damper discs and frames of formed galvanized steel. Make linkage components of galvanized steel and aluminum. All shafting must be stainless steel with the exception of standard actuator-shafts. Protect critical rotating surfaces with nylon bushings. Use 10 to 15 psig spring range to achieve tight closure.
- E. Acceptable Manufacturers
 - 1. M&I Positive Seal
 - 2. Arrow Type 70
 - 3. Arlan
 - 4. Or Approved Equal

PART 3 - EXECUTION

3.1 FIRE DAMPERS AND FIRE/SMOKE DAMPERS

- A. Provide conveniently located access doors, of ample size for resetting the dampers. Duct mounted grilles, registers or diffusers can be used for access as long as such access is readily available as determined by the Commissioner.
- B. Galvanize or paint with one coat of rust inhibiting paint the entire fire damper assembly before installation.
- C. In the open position with damper shutter stored, provide 95 percent free area.
- D. All actuators of automatic fire dampers (FD-H) and combination fire/smoke dampers (FSD), except for those designated as FSD-HS, are connected by Section 23 09 23 to the controlling device. Section 23 09 23 will provide all wiring, conduit pneumatic tubing, circuit protective devices, etc., as necessary to meet this requirement.
- E. Fire/smoke dampers designated as FSD-HS will be installed in ducts and penetrations of rated walls and floors which are part of a smoke control and/or evacuation system. These dampers may be controlled during normal operation by the A.T.C. BMS system; however, during a smoke or fire emergency, these dampers will be operable from the Fire Command Center.
- F. Design dampers incorporating multiple sections in such a way that the actuators are readily accessible. Coordinate locations so as not to be necessary to remove damper sections, structural, or other fixtures, to facilitate removal of damper motors. Provide access doors where necessary to meet this requirement. In particular, ensure that where in-air stream actuators are provided, they are readily accessible.
- G. Do not install Class 1 fire/smoke or smoke dampers in ducts with any dimension smaller than 12". Expand duct to 12" prior to installation. For Class 2 dampers, the minimum dimension is 9".

3.2 ALL DAMPERS

- A. Mount dampers plumb and level. Provide additional duct bracing and supports to properly support dampers.
 - B. Provide duct access doors for internal access to all fire dampers, combination fire/smoke dampers, smoke dampers, automatic dampers, and backdraft dampers.
 - C. Damper construction to be similar to that of the ductwork to which it connects (i.e., galvanized to galvanized, stainless steel to stainless steel).
- 3.3 Provide on all dampers, extractors, etc., mounted on externally insulated ductwork, 16 gauge elevated platform at least 1/8" higher than the thickness of the insulation. Provide damper shaft with Ventlok No. 607, or approved equal product from the manufacturers in Article 2.2-I bearing mounted on ductwork within elevated platform.

END OF SECTION 23 33 13

SECTION 23 36 10 – AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish and install all air devices, diffusers, grilles, registers, and ceiling outlets as indicated on the Drawings and as required for the ceiling type and proper distribution of air within the space and for return of air from the space to the various air systems. Exhaust grilles and registers shall also be provided where indicated on the Drawings.

1.2 WORK INCLUDED

- A. Air Outlets.
- B. Air Inlets.
- C. Thermally Powered VAV Diffusers.

1.3 SUBMITTALS

- A. Submit manufacturer's data indicating air distribution, outlet velocities, and acoustic performance.
- B. Submit manufacturer's specifications of construction including materials, installation instruction and adjustment data. Include "K" factors for balancing.
- C. Submit product accessories.

1.4 QUALITY ASSURANCE

- A. Air outlets and inlets to be tested in accordance with ADC (Air Diffusion Council).

PART 2 - PRODUCTS

2.1 GENERAL

- A. Size the air distribution outlets as shown on the drawings to accommodate the air volume and throw indicated so as to maintain a maximum terminal velocity of 50 feet per minute in the occupied area. The overall noise level produced by all of the supply air outlets and return air inlets in various rooms are not to exceed specified limits. Design outlets to distribute in such a manner that the space temperature will not vary more than 2°F over the entire conditioned area. The conditioned area is defined as the area 2'-0" above the floor to 7'-0" above the floor, inclusive. If the Contractor cannot comply with the above requirements by following the arrangement shown on the Drawings, he is to notify the Engineer, in writing, setting forth requested modifications.
- B. At the discretion of the Engineer, air outlets may be smoke tested to determine their compliance with these Specifications. See the Section entitled "Testing, Balancing and Adjusting" for testing requirements. At no cost to the City of New York make any revisions required for compliance with terminal velocity requirements, noise level requirements.
- C. Refer to Architectural Drawings and Specifications for ceiling type and construction. Provide proper frames and borders to fit the ceiling specified.

2.2 OUTLET TYPES

A. Type CD-A - Square Ceiling Diffuser Perforated Face

1. Perforated face star pattern supply diffuser, steel construction with removable/stationary deflectors. Deflectors to provide horizontal air pattern towards the corners of the diffuser. Sizes indicated on the Equipment Schedule are neck sizes. Face area is approximately 24" x 24". Air pattern is as indicated on the Drawings. Baked enamel finish and black inner finish.

B. Type CD-B - Square Diffuser

1. Same as CD-A, except face area is approximately 12" x 12".

C. Type CD-C - Square Ceiling Diffuser Louver Face Fixed Pattern

1. Louver face supply diffuser, all steel construction. Sizes indicated on Equipment Schedule are neck sizes. Baked enamel finish. Face area is approximately 24" x 24".

D. Type CD-D - Square Ceiling Diffuser Louver Face Fixed Pattern

1. Same as CD-C except face area is approximately 12" x 12".

E. Type CD-E - Round Ceiling Diffuser

1. Round face diffuser with fixed cone positions, all steel construction. Sizes indicated on Equipment Schedule are neck sizes. Baked enamel finish.

F. Type SR-A - Exposed Duct Supply Register

1. Steel register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and steel opposed blade volume control damper. Baked enamel finish. Install register on a reverse knuckle joint in accordance with SMACNA Manual.

G. Type SR-B - Sidewall Supply Register

1. All aluminum register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and aluminum opposed blade volume control damper. Baked enamel finish.

2.3 INLET TYPES

A. Type ER-A - Louvered Register

1. For sidewall or ceiling return or exhaust. All aluminum construction with one set of horizontal fixed blades, set at 45° fixed deflection, 3/4" spacing. Provide a steel opposed blade damper. Baked enamel finish.

B. Type ER-B - Sidewall Perforated Register

1. All aluminum construction with a steel opposed blade damper. Holes to be 3/16" diameter staggered. Baked enamel finish.

C. Type ER-C - Ceiling Perforated Register

1. All steel construction. Face area as shown on Drawings. Provide steel opposed blade damper.

D. Type EG-A - Louvered Return Grille

1. Same as ER-A except damper is deleted. For ceiling and sidewall applications.

E. Type EG-B - Sidewall Perforated Return Grille

1. Same as ER-B except damper is deleted. For sidewall applications.

F. Type EG-C - Ceiling Perforated Grille

1. Same as ER-C except damper is deleted. For ceiling applications.

G. Type EG-D - Door Mounted Transfer Grille

1. All steel construction. Blades to be inverted "V" shaped, 20 gauge steel, to provide sight proof design and stiffness.

2.4 ACCEPTABLE MANUFACTURERS

- A. Titus
- B. Price
- C. Anemostat
- D. Krueger
- E. Or Approved Equal

PART 3 - EXECUTION

NOT USED.

END OF SECTION 23 36 10

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
AIR OUTLETS AND INLETS - 23 36 10 - 4

SECTION 23 52 10 – PIPING AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provide piping and accessories in accordance with the Contract Documents.

1.2 SUMMARY

- A. Pipe.
- B. Fittings.
- C. Unions and Couplings.
- D. Escutcheons.
- E. Sleeves.
- F. Welding Procedures.
- G. Pipe Stress Calculations.

1.3 SUBMITTALS

- A. Submit AutoCAD computer generated shop drawings indicating anchoring details, anchor points, guide details, etc.
- B. Submit AutoCAD computer generated drawings of location and size of sleeves for openings in floors and walls
- C. Submit AutoCAD, computer generated detailed piping layouts at $3/8" = 1'-0"$ scale for approval. Piping layouts shall be submitted for each individual construction phase, and for the entire completed project.
- D. Submit manufacturer's data for hangers and fittings.
- E. Submit dimensioned drawings to the Engineer for approval showing pipe penetrations through core walls, slabs and other structural elements, anchor and guide locations, etc.
- F. Submit a schedule for pipe fittings.
- G. Submit a schedule for pipe sleeves.
- H. Submit a set of welding procedures for each pipe service.
- I. Submit a list of pipe welders proposed for all shop and field welding.
- J. Submit mill certificates for piping and fittings.
- K. Submit an overall piping schematic drawing (similar to a riser or isometric diagram) showing entire installed system.

L. Submit plan drawings showing piping point loads to structure and supplementary steel layouts for all systems.

M. Submit a line-by-line statement of compliance or non-compliance with this specification section.

1.4 DESCRIPTION

A. Provide piping and accessories in accordance with the Contract Documents.

1.5 WORK INCLUDED

A. Pipe.

B. Fittings.

C. Unions and Couplings.

D. Escutcheons.

E. Sleeves.

F. Welding Procedures.

1.6 QUALITY ASSURANCE

A. All piping work to conform to the latest edition of the appropriate ANSI Code for Pressure Piping and Power Piping, including latest amendments.

B. Employ only skilled welders, each holding a currently active certificate, dated within 12 months, from a recognized testing laboratory, indicating satisfactory welding test results per the American Welding Association or ASME Boiler and Unfired Pressure Vessel Code, Section IX, Welding Qualifications. Retest is required if welder has not performed welding for a period of 90 days. Maintain copies of certificates at the job site. Non-certified welders shall not be employed.

C. The piping shown on the Drawings is indicated schematically to show the general distribution and system configuration. Coordinate with the work of other Sections and Divisions of the Specifications so as to provide a complete system, including approved rerouting, horizontal and vertical offsets, etc., to make the piping distribution fit within the confines of shafts, ceiling spaces, chases, equipment rooms, etc., all to the satisfaction of, or as directed by, the Architect.

D. All piping shall be sourced from the United States (domestic supply).

PART 2 - PRODUCTS

2.1 PIPING

A. Piping, fittings and accessories to be suitable for the pressure and temperatures of the service. Ascertain system working pressure and provide piping accordingly, based on the systems to be tested at 150 percent of maximum system working pressure.

B. Galvanizing: Hot process inside and outside of pipe with zinc coating, minimum 3 oz. per sq. ft.

C. For butt-welded piping, bevel ends as specified under "Welding of Piping". For screwed joint connections, ream cut ends of pipe to full diameter. Socket welded piping shall only be

permitted for 1-1/2 inches and smaller. Ends shall be without burrs or other inward projections at the cut ends.

- D. All steel pipe is ERW or seamless type ASTM A-53, Grade B, unless noted otherwise. Dimensions and weights of steel pipe to conform to ANSI Standard B16.10.
- E. For welded pipe, fittings shall be welding fittings and all pipe flanges shall be welding neck type.
- F. Copper pipe to be hard drawn conforming to ASTM B-88.
- G. Refrigerant tubing shall be cleaned and dehydrated at the factory and shipped sealed with a holding charge of nitrogen.

2.2 PIPE FITTINGS

- A. Comply with latest edition of ANSI B16.3, B16.5, B16.9 and B16.11 standards.
- B. Provide steel elbows of long radius pattern.
- C. Fittings to be of the same schedule (weight) as the pipe to which it will be welded. Submit cut samples for approval if directed. Provide fittings which maintain full wall thickness throughout, ample radius and fillets, and proper bevels or shoulders at ends.
- D. Provide carbon steel welding flanges at all flanged valves and equipment, and as required for union connections. Flanges to be either slip-on type, bored to match diameter of pipe and front and back welded thereto, or welding neck pattern. Use flanges with a working pressure equal to 150 psi, or a minimum of 150 percent of the maximum system working pressure.
- E. Provide cadmium plated or galvanized machine bolts with heavy pattern semi-finished hexagonal steel nuts to join flanges. Use studs threaded both ends where necessary to facilitate removal of valves or disassemble flanged fittings. All bolts used shall be "B-7" bolts plus studs plus threaded rods, using "2H" nuts.
- F. Provide 1/16 inch thick, non-asbestos gaskets between flanges made of compressed sheet on cold water piping only. Steam piping shall utilize "flexitalic" gaskets only.
- G. Use Teflon tape on male threads of screwed pipe (female).
- H. Screwed fittings to be inside threaded with threads cut clean and true.
- I. Copper fittings to be brazed fittings conforming to ASTM B16.5, B16.18 and B16.22.
- J. Branch piping connections for all steam service piping, feed water piping and condensate piping shall utilize tee fittings, reduced elbows, or shaped nipples only. No Weld-O-Lets, Thread-O-Lets or "stab-in" connections are permitted.
- K. Branch piping connections for other water service piping (chilled water, condenser water, hot water) shall utilize fittings, Weld-O-Lets, Thread-O-Lets, or shaped nipples only. No "Stab-in" connections are permitted.
- L. Provide reducing/increasing long radius elbows at pump inlet and outlet connections.

2.3 UNIONS AND COUPLINGS

- A. Provide unions where required for the removal of equipment. For piping 3" and smaller, use ground joint type of malleable iron with brass seats for iron pipe, and made of brass for brass

pipe and copper tubing. For piping 4" and larger use 150 psi forged steel slip-on flanges for ferrous piping and bronze flanges for copper piping.

- B. Insulating Coupling Type: At each joint between steel or zinc (galvanized) and copper; up to 2" size, Capitol Series CS or Epco "Dielectric Union"; larger sizes, Capitol Series FG, or approved equal, flange type with insulator spacers and washers. Or use an approved equal product from the manufacturers in Article 2.12.

2.4 CONDENSER WATER SYSTEM PIPING AND FITTING SCHEDULE

A. Piping:

1. 10" and smaller will be sch 40 A 53 Gr B ERW pipe, black steel.

B. Fittings:

1. 2 ½" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234.
2. 2" and smaller will be screwed steel fittings 2000#.

C. Flanges:

1. 2 ½" and larger will be 150# weld neck flanges.

D. Joints:

1. 2 ½" and larger will be welded.
2. 2" and smaller will be screwed.

E. Branch Connections:

1. Where applicable branch connections to steel pipe will be made with tees, weld-o-lets, thread-o-lets, socket-o-lets, shapped nipples or ½ couplings.

F. Bolts and Nuts:

1. ASTM A307 Grade "B7" bolts with Grade "2H" nuts
2. Exterior bolts, nuts and accessories at the cooling tower and filter room will be hot dip galvanized or cadmium plated.

G. Gaskets:

1. Garlock 3000. Or use an approved equal product from the manufacturers in Article 2.12.

2.5 PUMPED CONDENSATE PIPING AND FITTING SCHEDULE

A. Piping:

1. 10" and larger will be extra strong A 53 Gr B Seamless Pipe Black Steel
2. 8" and smaller will be Schedule 80 A 53 Gr B Seamless Pipe Black Steel

B. Fittings:

1. 2 ½" and larger will be welded fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234

2. 2" and smaller will be Screwed Steel Fittings 2000#.

C. Flanges:

1. 2 ½" and larger will be 150# Weld Neck or Slip On Flanges.
2. ANSI B 16.5 ASTM 105
3. 2" and smaller can be Weld-Neck, Socket Weld, Slip-On or Threaded 3000# Steel.

D. Joints:

1. 2 ½" and larger will be welded.
2. 2" and smaller will be screwed.

E. Branch Connections:

1. Where applicable branch connections to steel pipe will be made with Tee fittings only.

F. Bolts and Nuts:

1. ASTM A 307 Gr "B7" bolts and grade "2H" nuts.

G. Gaskets:

1. Garlock 3000 (suitable for 1200°F). Or use an approved equal product from the manufacturers in Article 2.12.

2.6 GLYCOL SYSTEM MAINS PIPING AND FITTING SCHEDULE

A. Piping:

1. 3" to 12" and smaller will be Schedule 40 A 53 Gr B Seamless Pipe, Black Steel.
2. 2 ½" and smaller will be Type "L" copper.

B. Fittings:

1. 3" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234.
2. 2 ½" and smaller will be brazed ANSI B16.22 Wrought copper.

C. Flanges:

1. 3" and larger will be Weld Neck or Slip On 150# Flanges. ANSI B 16.5 ASTM 105
2. 2 ½" and smaller will be brazed Socket Weld copper flanges

D. Joints:

1. 3" and larger will be welded.
2. 2 ½" and smaller will be brazed or soldered.

E. Branch Connections:

1. Where applicable branch connections to steel pipe will be made with tees, weld-o-lets, thread-o-lets, socket-o-lets, ½ couplings.

F. Bolts and Nuts:

1. ASTM A307 Grade B7 bolts, and grade 2H nuts.

- G. Gaskets:
 - 1. Garlock 3000. Or use an approved equal product from the manufacturers in Article 2.12.

2.7 DOMESTIC WATER PIPING AND FITTING SCHEDULE

- A. Piping:
 - 1. 8" and above pipe A53B Seamless Standard Weight Galvanized with roll groove ends.
 - 2. 2 ½" to 6" L Cooper Tubing Hard Drawn Roll Grooved
 - 3. 2" and Down L Cooper Tubing Hard Drawn or Soft Annealed
- B. Fittings:
 - 1. 2 ½" and above Victaulic with grooved fittings, couplings zero flex type.
 - 2. 2" and down ANSI B16.22 Wrought Copper
- C. Flanges:
 - 1. 150# Victaulic Adapter Flanges.
- D. Joints:
 - 1. 2 ½" and above Victaulic Mechanical Couplings Style 07 Zero Flex with optional standard coupling Style 77 to be used in special conditions as approved.
 - 2. 2" and down soldered with 95/5 SN/SB
 - 3. Material transition joints will be made using Flanged Isolation Kits or Dielectric Unions.
- E. Branch Connections:
 - 1. Will be made with Tee Fittings or Victaulic Figure 72 outlet couplings or Fig. 920, 921 bolted branch outlets.
- F. Bolts and Nuts:
 - 1. ASTM A307 Grade B7 Bolts, Grade 2H Nuts
- G. Gaskets:
 - 1. Garlock 3000. Or use an approved equal product from the manufacturers listed in Article 2.12.
 - 2. Isolation Gasket sets where applicable.

2.8 SOFT WATER PIPING AND CHEMICAL FEED PIPING

- A. Piping:
 - 1. All sizes Schedule 40 Stainless Steel.
- B. Fittings:
 - 1. All sizes to utilize butt weld or socket weld fittings.
- C. Flanges:
 - 1. 150# Weld Neck to ANSI 816.5.
- D. Joints:

1. All sizes to utilize butt weld or socket weld joints.
- E. Branch Connections:
1. Will be made with Tee Fittings outlet
- F. Bolts and Nuts:
1. ASTM A307 Grade B7 Bolts, Grade 2H Nuts
- G. Gaskets:
1. Garlock 3000 Or use an approved equal product from the manufacturers in Article 2.12.
- 2.9 VENTS AND EQUIPMENT DRAINS PIPING AND FITTING SCHEDULE
- A. Piping:
1. 12" and larger will be Standard Weight A53B ERW Black Steel Pipe.
 2. 10" and smaller will be Schedule 40 A53B ERW Black Steel Pipe.
 3. 2" and smaller can be L Copper Tubing Hard Drawn, Soft Annealed or A53B ERW Schedule 40 T&C Black Steel Pipe.
- B. Fittings:
1. 2 ½" and larger will be Weld Fittings the same schedule as the pipe to which it will be welded. ANSI B 16.9 ASTM A234.
 2. 2" and smaller will be Threaded Black Cast Iron Fittings 125# or ANSI B16.29 Wrought Copper Fittings (Contractors Option to install larger sizes.)
- C. Flanges:
1. 2 ½" and larger will be 150# Weld Neck or Slip On Flanges ANSI B16.5, ASTM 105
 2. 2" and Down will be 125# C1 Screwed Flanges.
 3. Copper sweat will be 125# Sweat Bronze Companion Flange ASTM B584.
- D. Joints:
1. 2 ½" and larger will be welded.
 2. Copper systems Soldered with 95/5 SN/SB.
 3. Threaded 2" and down.
 4. Di-Electric Fittings or Isolation gasket sets will be used between Copper/Steel services.
- E. Branch Connections:
1. 2 ½" and larger will use fittings or fabricated laterals.
 2. Copper system will be made with Tee Fittings.
- F. Bolts and Nuts:
1. ASTM A307 Grade B7 Bolts and Grade 2H Nuts
 2. Exterior Cooling Tower will be hot dipped galvanized, all other exterior locations can be plated.
- G. Gaskets:
1. Garlock 3000 Or use an approved equal product from the manufacturers in Article 2.12.
 2. Isolation gasket sets where applicable.

2.10 ESCUTCHEONS

- A. Cast iron or cast brass, deep type, to cover sleeve hubs or fitting projections. Provide escutcheons for exposed piping through floors, ceilings, walls and partitions in finished areas, and piping through all fire rated separations. Attach escutcheon to building material, not to pipe.

2.11 SLEEVES

- A. Construct sleeves for pipes passing through partitions, hung or furred ceilings, etc., of not lighter than 18 gauge galvanized steel.
- B. Provide standard weight galvanized steel pipe sleeves at all penetrations of foundation walls, block walls, reinforced concrete walls, and all floor and roof slab penetrations.
- C. Provide 25 gauge waterproof galvanized sheetmetal counter-flashing at all pipe roof penetrations.

2.12 ACCEPTABLE MANUFACTURERS

- A. Pipe
 - 1. U.S. Steel "National"
 - 2. Ohio Pipe
 - 3. LTV-E
 - 4. Van Lewen
 - 5. Or Approved Equal
- B. Welding Fittings
 - 1. Weldbend
 - 2. Tubco
 - 3. Cajon
 - 4. Naylor
 - 5. Ladish
 - 6. Van Lewen
 - 7. Or Approved Equal
- C. Copper Pipe and Fittings
 - 1. Mueller Brass
 - 2. Nibco
 - 3. Reading Tube
 - 4. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Preparation
 - 1. Ream and de-burr pipes and tubes.
 - 2. Clean of scale and dirt, inside and outside, before assembly.
 - 3. Remove welding slag or other foreign material from piping.
- B. Installation

1. General:

- a. The drawings indicate generally the size and location of piping and while sizes must not be decreased, the Contractor may change locations of pipes in order to accommodate conditions at the job.
- b. Closely plan and coordinate concealed piping and ductwork above suspended ceilings to avoid interferences, and install to maintain suspended ceiling heights shown on architectural drawings.
- c. Install exposed work in a neat, workmanlike manner; parallel to the closest wall with maximum headroom. Avoid light fixtures.
- d. Properly grade piping to secure easy circulation and prevent noise and water hammer. Pitch horizontal pumped water piping 1 inch in 60 feet upward in direction of flow. Pitch steam and condensate piping 1 inch in 40 feet downward in direction of flow. Pitch gravity water piping one foot in 100 feet downward in direction of flow.
- e. Install (at traps, instruments, etc., and wherever else directed) approved unions, to permit easy connection and disconnection.
- f. Make riser branches and other offsets with 4-elbow swings including copper risers and branches.
- g. To meet job conditions offset water supply and return mains up and down. Provide drain cocks with hose connection and chained cap (minimum 3/4 inch) at low points and vent traps at high points.
- h. After systems are in operation, if coils do not circulate quickly and noiselessly (due to trapped or airbound connections), make proper alterations in these defective connections including altering finished construction and refinishing without additional cost.
- i. Pipe Nipples: Pipe 3 inch in length and less is considered a nipple. Nipples to be of extra heavy construction. Do not use close nipples.
- j. Do not use short lengths or nipples at locations where a full length of pipe will fit.
- k. Make piping connections to coils and equipment with offsets provided with screwed or flanged unions so arranged that the equipment can be serviced or removed without dismantling the piping. Do not screw unions directly to coil header piping connections.
- l. Cut screw threads clean and true. Do not use bushings. Make reductions with eccentric reducers or eccentric fittings to permit draining unless otherwise indicated. Ream out pipe 2 inch and less after cutting to remove burrs.
- m. Make flanged connections with flange faces true and perpendicular to the center line of the pipe to which the flanges are attached.
- n. Allow space for pipe insulation.
- o. Provide dielectric couplings at all junctions of copper and steel or galvanized piping.
- p. Provide for expansion and contraction of piping systems.
- q. Use main sized saddle weld-o-lets or thread-o-lets, type branch connections for directly connecting branch lines to mains in steel piping if main is at least one pipe size larger than the branch for up to 6 inch mains and if main is at least two pipe sizes larger than branch for 8 inch and larger mains. Do not project branch pipes inside the main pipe. Use of welding tees are permitted for all sizes.
- r. Cap all openings in pipes during progress of the work.
- s. Do not connect bottom of pipe risers until riser is complete. Rod or tap to clear loose material before making bottom connection.
- t. Correct leaks in piping immediately using new materials. Leak-sealing compounds or peening is not permitted.

2. Supports:

- a. Support or suspend piping properly on stands, clamps, hangers, etc., of approved design and make. Design supports to permit free expansion and contraction while

minimizing vibration. Anchor pipes where shown or required by means of steel clamps, or other approved means, securely fastened to the pipe and the building construction. Follow MSS standards for supports of piping.

- b. Provide structural pipe supports including supplemental steel channels, angles, columns, etc., necessary to complete the installation. The provision of structural supports over and above that required for the building structure is the responsibility of this Section.
- c. Prior to installation of hanger rods and other pipe supports, obtain approval from the Commissioner for proposed method of hanging and for exact location of all mounting points. Submit weights and location of all piping to the Commissioner for approval well in advance of general construction work to allow sufficient time for structural redesign to accommodate the installation.
- d. Place piping in proper alignment and position prior to connection to anchors, expansion loops, joints and equipment. Furnish jacking devices, temporary steel structural members and assembled structures as necessary. Remove temporary equipment and structures at the completion of the work.
- e. Reinforce piping at anchor points.
- f. For life safety systems only seismic supports are required as indicated in the BOCA Basic Building Code. Contractor shall provide signed and sealed calculations and submittals by a licensed professional engineer for proper seismically designed supports.

3. Sleeves:

- a. Provide sleeves for all pipes passing through floors, rated partitions and walls of sufficient diameter to accommodate pipe covering where such is required. Set sleeves for concrete floors, walls, and other masonry work in place before the floors or walls are poured or built. Locate sleeves secure in place so that space all around the pipes, after the pipes are installed in place is about equal. Anchor sleeves by use of anchor flanges embedded in concrete or at each end of sleeve. Properly firestop around sleeves after wall is constructed.
- b. Provide sleeves for all pipes passing through non-rated partitions or ceilings. Size sleeves to accommodate pipe covering where applicable. Sleeve seam to be drive slip. Sleeve to be flanged 1" at each end to lock sleeve into penetration.
- c. For sleeves at penetrations of the metal deck, attach to the deck prior to the pouring of the deck concrete. Set sleeves in such a manner so that no concrete fills their interior during the concrete pouring operations.
- d. Caulk floor sleeves for exposed pipes watertight and project sleeve approximately 2" above the finished floor. Finish sleeves flush with the bottom of slab and also with the finished faces of wall.
- e. Provide sleeves with an inside diameter at least 1/2" greater than outside of pipe served, including pipe insulation which must be continuous through sleeve, except as detailed on the Drawings.
- f. Where piping penetrates non-rated walls, partitions, etc., pack space between piping and sleeve with mineral wool. At penetrations through foundation walls, rated walls, and floor slabs provide firestop material as specified and shown on the Drawings.
- g. Do not support pipes by resting clamps on sleeves. Clamps must extend beyond sleeve and be supported outboard of sleeve in an approved manner. In no case shall sleeves be cut or slotted to accommodate pipe clamps.
- h. Where space for future pipes and conduits is required, provide sleeves and fill with lightweight concrete.
- i. Sleeves penetrating floor and roof slabs shall extend at least 2" above slab.
- j. Cover all pipe/sleeve/firestopping gaps using escutcheons.

4. Drain Installation:

- a. Coils and vessels which contain water to have connections suitably located; and valved outlets, to permit individual venting and draining.
 - b. Provide valved drains with hose bibb at low points of piping systems and at the bottom of each riser.
 - c. Provide cooling coil condensate drains, fan drains, and all unit casing drains with 2-inch minimum trap seal, unless otherwise noted, to spill over floor drains.
 - d. Provide 1-inch minimum drain lines in sheet metal intake and discharge plenums not indicated to have floor drains. Pipe drains to nearest approved indirect waste.
5. Except as noted, make soldered joints with 95% tin and 5% antimony solder, having a melting point of not less than 460°F. Thoroughly clean solder joints before the application of the solder. Cut pipe square with burrs removed and apply flux before soldering.
 6. Make brazed joints using brazing alloys with a melting point at or above 1,000°F.

3.2 WELDING OF PIPING

- A. Where shown on drawings, specified or directed, use welded joints, outlets and flanges. Welded joints may also be provided elsewhere, at Subcontractor's option, except at points where it may be explicitly specified or directed to leave flanged joints.
- B. Whenever welded piping connects to equipment valves or other units needing maintenance, servicing, or possible removal, flange the connecting joints. Match the pressure rating of the pipe flanges with the pressure rating of the flanges on the equipment to which the piping connects. Provide flanged pipe sections to permit removal of equipment components.
- C. Welding Process: Sizes 4 inch and smaller, use either gas welding (oxyacetylene process) or metallic arc process; sizes above 4 inch, use metallic arc process.
- D. Preparation of Pipe Ends: For thicknesses up to 3/16 inch, ends shall be finished square or with 37½ degree bevel with a 1/16 inch band; for thicknesses 3/16 inch to 3/4 inch inclusive, ends shall be machined or ground to have a 37½ degree bevel with a 1/16 inch band per latest edition of ASTM B31.1.

3.3 PIPE STRESS ANALYSIS

- A. For all new steam piping (all pressures) and boiler feedwater piping prepare a pipe stress analysis and report reflecting piping and hangers in their actual installed condition.
- B. Pipe stress analysis to be prepared by a Licensed Professional Engineer in the state of New York with experience in similar calculations. The calculations shall be prepared using a computer program endorsed by the ASME and conforming to ASME B31.1 power piping code requirements.

END OF SECTION 23 52 10

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
PIPING AND ACCESSORIES – 23 52 10 - 12

SECTION 23 62 00 – WATER COOLED SELF-CONTAINED AIR CONDITIONING UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide water cooled self-contained air conditioning units in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Constant Volume Units.

1.3 SUBMITTALS

A. Shop Drawings

- 1. Submit dimensioned drawings with operating weights, piping connections, wiring diagrams, and control interface diagrams.
- 2. Submit wiring diagrams for all controls, including panel layout and remote devices.

- B. Product Data: Manufacturer's latest listed data for materials, equipment and installation.

C. Test Reports

- 1. Certified sound power levels.
- 2. Certification of all factory tests as required herein.
- 3. Statement of compliance with all required authorities.

- D. Submit sound power levels and rating data for all units. Noise level from the units are not to exceed NC-38 beyond 10 feet from fan room.

- E. MEA or BS&A number.

1.4 QUALITY ASSURANCE

- A. Each unit, including factory-installed options, is to be U.L. listed, performance tested and rated in compliance with ARI 210 and ARI 360, Commercial and Industrial Unitary Air Conditioning Equipment.

- B. Design unit to conform to ANSI-B9.1 and UL 465.

- C. Performance test all units at the factory prior to shipment.

- D. Manufacturer of the unit is responsible for the performance of units, including static pressure and sound attenuation effects of the discharge plenum arrangement.

PART 2 - PRODUCTS

2.1 WATER COOLED SELF-CONTAINED AIR CONDITIONING UNITS

A. General

1. Units to be completely packaged, including filters, evaporator coils, multiple compressors, water-cooled condensers, internal vibration isolation and constant volume fan section. Units to require only connection of three phase power, water piping, remote sensors, control wiring and discharge air connection prior to operating units. Units to be mounted on 1" cork and neoprene pads, to be provided by the unit manufacturer.
2. Provide units pre-piped, pre-wired, factory assembled and factory tested, with all controls pretested prior to shipping.
3. Provide a terminal strip with each electrical component individually and separately wired to strip.
4. Provide a separate fuse, internally mounted, for each electrical component. A single fuse for multiple compressors or fan motors will not be accepted.

B. Cabinet, Casing and Frame

1. Unit framework to be formed of structural steel members of 12 to 14 gauge mild steel. After assembly paint the framework for maximum protection against rust. Exterior panels to be fabricated of 18 gauge galvanized steel finished with a baked acrylic enamel over an epoxy primer. Provide neoprene gasketing between panels and frame members; panels to be attached to the frame with quick release latches (no sheetmetal screws). Insulate sections including compressor compartment with 1" thick, 3-lb./cu. ft. density fiberglass having an R value of 4.16.
2. Arrange units for full front, side and rear service access to all mechanical, electrical and refrigeration controls, adjustment of expansion valves, check out of compressors, adjustment of head pressure controls, check out of electrical control panel, without disrupting or interfering with air flow.
3. Provide discharge acoustical plenums lined internally with a minimum of 2" thick, 4 lb/cu.ft. density fiberglass that is in accordance with prototype designs previously tested in a full scale mock-up environment by an acoustical consultant. If the plenum is not built at the factory, it is the manufacturer's responsibility to provide the Mechanical Contractor with the exact construction details and specifications for the plenum to be constructed by the sheetmetal subcontractor.

C. Supply Fan and Motor

1. Provide single width, forward curved Class I II supply fans secured to a machined, ground and polished solid steel shaft. Coat shaft with a rust inhibitor and support by two outboard bearings selected for a minimum 200,000 hours average life. Provide drives with fixed pitch sheaves with multiple V-belts sized for 150% of nominal motor horsepower. Mount supply fan motor on a sliding base. Mount fan and motor assembly on a heavy duty steel frame supported by springs designed for 90-99% isolation efficiency.
2. Provide three-phase NEMA design 'B', 40°C continuously rated fan motor with energy-saving design, .85 power factor, NEMA 'T' frame, open drip-proof, operating at 1750 rpm and supplied with grease-lubricated ball bearings.

D. Compressors

1. Provide multiple compressors of the heavy duty suction cooled, 1750 rpm, accessible semi-hermetic type complete with forced feed lubrication, suction and discharge service valves, suction strainer, oil level sight glass, internal relief valve, crankcase heater, and

internal 3-phase solid state thermal motor protection. The compressors are to be mounted on 1" deflection spring vibration isolators.

E. Condenser

1. Provide shell and tube condensers with removable header type with cleanable tubes and manufactured to ASME standards. Construct condenser with copper water tubes, steel tube sheets and cast iron headers. Design condenser for 400 PSIG refrigerant-side pressure and 150 250 350 PSIG water-side pressure. Permanent header shell and tube, spiral coil, or straight coil non-cleanable type condensers are not acceptable. Condenser heads are to be arranged so that removal of a single head will provide access to all tubes for mechanical cleaning. Provide condensers capable of 45°F entering water temperature without external control required.

F. Direct Expansion Coil

1. Provide direct expansion coil with ½" OD seamless copper tubes expanded into aluminum fins, not less than 3 rows deep or more than 12 fins per inch. Provide evaporator coil with a distributor with side port for hot gas bypass and thermostatic expansion valve with adjustable superheat and external equalizer. Test coil at 300 PSIG air pressure under water, completely dehydrate and pressure test with refrigerant.
2. Provide coils with heavy gauge, insulated, galvanized steel drain pans complete with mastic coating for corrosion protection.

G. Filters

1. Provide filters having a 40% ASHRAE dust spot efficiency, U.L. Class I pleated media type 4-inch deep.

H. Refrigerant Circuits

1. Each refrigerant circuit is to be an independent circuit completely piped, tested, dehydrated and fully charged with oil and refrigerant R-22. The refrigerant circuits are to include compressor, condenser with integral liquid sub-cooler, liquid line service and charging valve, filter drier, and sight glass. Compressor units to include suction and discharge line braided-wire isolators.

I. Temperature Control System

1. Provide each unit complete with all operating controls. Controls to be factory installed, including system on/off switch, status panel and eight-day time clock with programmable Holiday Schedules. Control system to be a solid state integrated system consisting of a discharge sensor and solid state master control module programmed to operate all stages of cooling including economizer, mechanical and tower water cycle.

a. Compressors Only:

- 1) Whenever tower water temperature is above 78°F, the two-way valve to the condenser opens. Tower water flows through condensers only. Mechanical cooling is staged through the solid-state logic module in response to both suction and discharge control to maintain a constant air discharge temperature.

J. Unit Control Panel

1. The unit control panel is to be factory mounted in the unit, complete with power and control transformers with fuses, supply fan motor and compressor contactors.
2. The following indicator lights are to be provided on the face of the unit control panel:
 - a. Dirty filter
 - b. Power on
 - c. Refrigeration failure (each compressor)
 - d. Fan on
 - e. Night set back on
 - f. Freezestat alarm
 - g. Smoke alarm
 - h. No air flow
 - i. "Push to Test" switch
3. If the control panel malfunctions, it will maintain the unit in the "As-Is/Was" mode. Provide alarm bell and silencing switch.
4. Provide spare contacts for remote indication of a common off-normal alarm, and remote start and stop of the unit.

K. Freezestat

1. Factory mounted freezestat to shut down unit when coil leaving air temperature is 35°F and below; send a signal to the Building Management and Control System to close the outside air damper.

L. External Control Features

1. Provide terminal strip contacts to signal external device operation as follows:
 - a. Signal condenser water pumps to start on unit start-up.
 - b. Signal VAV boxes for morning warm-up and cooling only operating conditions. The return air sensor for morning warm-up to be supplied by the VAV box manufacturer for field mounting.
 - c. Signal outdoor air damper to close during morning warm-up and night operation and open for normal cooling operation.
 - d. Smoke detector shutdown.
2. Interface with Building Management and Control System (BMCS):
 - a. Provide each unit with a manual switch for selection between automatic local control and automatic (BMCS) remote control. In the automatic local control mode of operation the unit operates on the basis of its standalone control system. When in the automatic remote control mode of operation the BMCS provides supervisory control via the interface detailed below.
 - b. Provide a terminal strip, readily accessible to the controls contractor, mounted on the DX unit and wired to enable the BMCS to perform the following functions when the DX unit is in the automatic (BMCS) remote mode:
 - 1) Unit On/Off Control: Terminals shall be wired such that a BMCS closed contact across them starts the unit and an open contact shuts down the unit.
 - 2) Supply (or Return) Air Temperature Setpoint Reset: These terminals shall be wired such that 1 to 10 Vdc or 4 to 20 mA BMCS signal may adjust the setpoint for the supply air temperature through a defined range.

- c. Provide a terminal strip (extension of 2. b. (1) above) which is wired to enable the BMCS to perform the following functions when the DX unit is in either local or remote modes of operation:
 - 1) Unit Status Monitoring: Terminals shall be wired such that the BMCS monitors closed contacts when the unit is in a cooling mode and open contacts when the unit is off.
 - 2) Fan Status Monitoring: Terminals shall be wired such that the BMCS monitors closed contacts when the fan is operating and open contacts when the fan is off.
 - 3) Alarm Status Monitoring: Terminals shall be wired such that the BMCS monitors closed contacts when there is a malfunction of the equipment and monitors open contacts when the equipment is operating manually.
- d. The DX unit manufacturer shall submit all documentation, wiring diagrams, etc., to the controls contractor as necessary for the controls contractor to install wiring from the BMCS to the terminal strip such that the BMCS may perform the above functions.
- e. In lieu of hardwired termination points, the manufacturer may provide the Controller with a high level interface. This interface shall be an industry standard such as BACNET and allow for all functions called for above to be obtained through this interface port.
- f. The DX unit manufacturer shall ensure that none of the safety interlocks incorporated into the stand alone package controls may be overridden by the BMCS.

M. Disconnect Switch

- 1. Provide a non-fused disconnect switch, factory mounted on exterior of each unit.

2.2 APPLICABLE MANUFACTURERS

- A. Liebert
- B. United Cool Aire
- C. Florida Heat Pump
- D. Carrier

PART 3 - EXECUTION

- 3.1 Manufacturer's service technician to check alignment of bearings; drives and motors after installation to ensure that no misalignment exists, or make any necessary alignment adjustments prior to startup.
- 3.2 Before units are started up, manufacturer to pump new grease into bearing housings to force out old grease and provide adequate lubrication.

END OF SECTION 23 62 00

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
WATER COOLED SELF-CONTAINED
AIR CONDITIONING UNITS - 23 62 00 - 6

SECTION 23 73 05 – FANS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide centrifugal and axial fans in accordance with the Contract Documents.

1.2 WORK INCLUDED

A. Centrifugal Fans

1. Scroll
2. Cabinet
3. Tubular Centrifugal

B. Axial Fans

1. Propeller
2. Vaneaxial - Fixed Blade
3. Vaneaxial - Adjustable Blade

1.3 SUBMITTALS

- A. Submit manufacturer's latest published data for dimensions, materials, accessories and installation details.
- B. Submit full technical rating data based on tests in accordance with current AMCA standards and in an AMCA approved laboratory. Include manufacturer's certified fan performance curves, and certified sound power ratings. Correct all ratings and curves for altitude and temperature where applicable.

1.4 QUALITY ASSURANCE

- A. Construct all fans, except vaneaxial adjustable blade, to comply with the requirements of the latest editions of the Air Moving and Conditioning Association (AMCA) Standards and Bulletins. Certify these fans by AMCA for performance ratings and provide the AMCA Performance and Construction Seal.
- B. Install fans, with their accessories, to comply with state and local Codes and with the recommendations of the National Fire Protection Association (NFPA).

PART 2 - PRODUCTS

2.1 GENERAL - ALL FANS

- A. Unless noted otherwise, provide discharge direction and drive arrangement to suit space conditions and conform as closely as possible to the layouts shown on the Drawings.
- B. Provide fans that are quiet operating and non-overloading over the entire range of operation.
- C. Provide fan motors in accordance with section entitled "Electric Motors." Size motor to drive its respective fan when the fan is operating at a speed 5% in excess of that required to meet the scheduled fan performance. Do not select motors within the service factor for this range.

- D. Provide fan starters in accordance with section entitled "Motors Controllers" for installation by Division 26.
- E. Statically and dynamically balance fan wheels/impellers at the factory and so certify.
- F. Provide precision self-aligning bearings designed to prevent leakage of oil or grease. Provide cups, oil chambers, Zerk or Alemite lubrication fittings in accessible locations for ease of lubrication. Provide heavy duty split pillow block bearings with tapered, double-row spherical roller assemblies. Provide bearings with service life in excess of 200,000 hours at maximum cataloged fan operating conditions.
- G. Provide copper lubrication leads, for lubrication of internal motors and bearings, extending to a capped termination point external to the fan casing.
- H. Extend wire leads on fans driven by direct motor drive from the motor in air tight rigid walled conduit, to a junction box mounted external to the fan casing.
- I. On fans driven by belt drive provide standard "V-groove" type belts and sheaves suitable for the service intended. Fan sheaves are non-adjustable type with removable machined bushings. Provide adjustable pitch type motor sheaves with double locking feature, to 10% above and below the rated fan speed. Dynamically balance sheaves with over three grooves. For fan motors over 10 horsepower, provide at least two belts. Design multiple belt drives capable of carrying the entire load with one belt broken. Provide preformed expanded metal or sheetmetal belt guards, with grommeted tachometer ports at the fan and motor shafts, for all exposed sheaves and belts.
- J. For motors in the airstream, provide TEAO or ODP type motors.
- K. Provide solid hot rolled steel drive shafts, accurately turned and polished to a close tolerance where in contact with bearings. Secure fan wheels/impellers to the drive shaft by a key and keyway assembly.
- L. Manufacture fans of materials and finishes suitable for the service intended.
- M. Construct wheels/impellers exposed to normal atmospheres of mild steel, hot dip galvanized, and finished with two layers of factory applied non-scaling paint.
- N. Construct fans exposed to corrosive atmospheres of corrosion resistant materials suitable for intended use, and factory finished with epoxy or other approved corrosion resistant coatings.
- O. Provide fans exposed to elevated temperatures with components rated for high temperature service. Do not use belt drive assemblies exposed to the airstream. Use direct drive motors certified for high temperature service.
- P. Construct fans used to convey flammable vapors of non-sparking (non-ferrous) materials, and use explosion proof motors.
- Q. Electrically ground fan and drive to prevent accumulation of static charge.
- R. Completely house fan assemblies exposed to weather in weatherproof enclosures including motor and drive.
- S. Fan wheels/impellers and casings shall be relieved of residual stresses produced in the forming process.
- T. Provide fans used to exhaust grease laden vapors with motor drive and bearings completely external of air stream.

- U. Provide housings with integral inlet and discharge flanges, complete with bolt holes for duct connections.
- V. Provide parallel vane pre-rotation vortex dampers at the fan inlet for variable volume control. Furnish and install all necessary linkages and accessories required for automatic control.
- W. Provide variable frequency drive as specified in section entitled "Variable Frequency Controllers."
- X. Provide gasketed access doors to permit routine maintenance and inspection of motor and internal components.

2.2 CENTRIFUGAL FANS

A. Scroll Type

1. Provide backward inclined (BI), backward curved (BC), airfoil (AF), forward curved (FC) fan wheels, and single width single inlet (SWSI), or double width double inlet (DWDI), as indicated on the Drawings, enclosed in a scroll shaped fan housing.
2. Weld or securely rivet fan blades to the hub plate and rim.
3. Rigidly build and brace curved scroll shaped housings with continuous welded seams and joints. Lockseam construction may be accepted for smaller fan sizes where it is standard construction for models listed on Drawings.

B. Tubular Type

1. Provide backward inclined or airfoil fan wheels as indicated on the Drawings, in a cylindrical housing, with integral inlet venturi and airflow straightening vanes, arranged to impart unidirectional air flow.
2. Weld fan blades to the hub plate and rim. Backward inclined blades may be securely riveted to the hub plate and rim. Precisely cast aluminum fan wheels and machine finish.
3. Match the wheel inlet ring to a close tolerance with integral deep spun aerodynamic venturi inlets.
4. Provide radial air flow straightening vanes at the fan discharge.

C. Cabinet Type

1. Provide scroll type centrifugal fans, factory installed within a cabinet enclosure, and comply with the requirements of Scroll Type Centrifugal Fans.
2. Internally isolate fan and motor assemblies from the cabinet.
3. Provide gasketed access doors and panels for inspection and routine maintenance of the internal components.
4. Provide solid state variable speed controllers for small ceiling mounted direct driven exhausters and transfer fans.

D. Acceptable Manufacturers

1. Loren Cook
2. Barry Blower
3. Buffalo
4. Trane
5. Greenheck
6. Penn
7. Aerovent
8. Peerless
9. Or Approved Equal

2.3 AXIAL FANS

A. Propeller Type

1. Include propeller type impellers, complete with motors, and panel or ring mountings.
2. Vary fan blades in camber and twist from base to tip.
3. Construct impellers of die formed steel or aluminum attached to a central hub mounted on the fixed drive shaft.
4. Rotate fan hub on the fixed drive shaft using sealed ball bearings.
5. To eliminate overhang load on belted units, design to apply belt load to the hub in the same plane as the bearings.
6. Direct drive fans are acceptable where belt driven units do not meet the criteria.
7. Provide panels or rings with spun venturi inlets suitable for wall mounting and structural angle supports of welded steel construction.
8. Provide basket type fan guards for exposed inlets and discharges.
9. Acceptable Manufacturers
 - a. Loren Cook
 - b. Greenheck
 - c. Penn
 - d. Aerovent
 - e. Peerless
 - f. Or Approved Equal

B. Vaneaxial Fixed Blade Type

1. Include impeller, motor, drive and cylindrical housing.
2. Construct fan blades, airfoil cross section, varying in camber and twist from base to tip, of die-formed steel or aluminum.
3. Fixed pitch fans shall have form impeller blades and hub in a single casting, or precision weld blades to the hub assembly.
4. Mount impeller directly on the drive shaft and secure in place with locking keyway assembly. Design motor and impeller to be removable from the inlet side of the fan.
5. Cross brace motor support base on direct drive fans to the fan housing for structural rigidity to prevent motor misalignment.
6. On belt drive fans protect belts and bearings from the airstream in an air insulated enclosure. Design to apply belt loads to the hub in the same plane as the bearings to eliminate overhang load.
7. Construct cylindrical fan housings of heavy gauge hot rolled steel with continuous weld seams.
8. Provide venturi inlet bell and discharge diffuser accessories of the same gauge and material as the fan housing.
9. Acceptable Manufacturers
 - a. Trane
 - b. Greenheck
 - c. Penn
 - d. Aerovent
 - e. Peerless
 - f. Or Approved Equal

C. Vaneaxial Adjustable Blade Type

1. Include impeller and hub, guide vanes, motor, drive and cylindrical housing.
2. Construct fan blades of die-formed aluminum, sized for the fan diameter. Blades cut down from longer sections will not be acceptable. Provide double thickness blades with airfoil cross section and profile, varying in camber and twist, from base to tip.

3. Provide fans designated as adjustable pitch fans with blades which can be manually adjusted in the field. Provide pitch indicators at the base of each blade. Secure blades in place with set screws or locking adjustment nuts.
4. Provide fans designated as controllable pitch fans with in flight blade pitch modulation. Vary blade pitch through an external actuator furnished by the fan manufacturer with the fans connected via linkages to an internal, lubricated thrust bearing assembly, shall vary blade pitch in response to a command from the system air volume controller. Indicate blade angle on an external pitch index plate. Furnish and install all necessary linkages and accessories required for automatic control. Provide limit control set to the maximum allowable blade angle to prevent motor overload and burnout. Upon fan shutdown or power failure, pitch shall be reset to the minimum setting.
5. Mount impeller directly on the drive shaft and secure in place with locking keyway assembly. Design motor and impeller to be removable from the inlet side of the fan.
6. Provide an aerodynamic spinner cap over the hub face of impellers, to protect and conceal blade adjustment bearings.
7. Construct guide vanes of heavy gauge material and match the camber and twist of the impeller blades.
8. Cross brace motor support base and motor fairing on direct drive fans to the fan housing for structural rigidity to prevent motor misalignment.
9. On belt driven fans, protect belts and bearings from the airstream in an air insulated enclosure. Design to apply belt loads to the hub in the same plane as the bearings to eliminate overhang load.
10. Construct cylindrical fan housings of heavy gauge hot rolled steel with continuous weld seams.
11. Provide venturi inlet bell and discharge diffuser accessories of the same gauge and material as the fan housing.

D. Acceptable Manufacturers

1. Woods
2. Flakt
3. Joy
4. Or Approved Equal

PART 3 - EXECUTION

- 3.1 Install fans in accordance with manufacturer's recommendations and as shown on the Drawings. Follow SMACNA and AMCA recommended procedures for fan installations, belt guards, duct connections, etc.
- 3.2 Provide flexible connections as described in specification section entitled "Sheetmetal" to provide sufficient separation of ductwork from fan assembly to prevent metal-to-metal contact.
- 3.3 Install fans and motors with proper support and vibration isolation as specified in section entitled "Vibration Isolation".
- 3.4 Provide sufficient clearances around fans for access and servicing of components. Install fans such that access doors, motors, belts, lubrication lines, electrical connections, etc. are readily accessible and not obstructed by other installations or structures.
- 3.5 Bump start fans to check that fan wheel/impeller rotation corresponds to the desired direction of air flow. Correct fans found to be rotating in a direction opposite to that desired.
- 3.6 Tighten belt drives, taking into account the service factor and any other design of the drive. Exercise care not to overtension belts.

- 3.7 Check all bolts and fasteners to ensure proper tightness. Do not overtighten nuts and bolts.
- 3.8 Check bearings and motor for proper lubrication, taking care not to over-lubricate. Use only lubricants recommended by the manufacturer.

END OF SECTION 23 73 05

SECTION 23 85 00 – VARIABLE FREQUENCY CONTROLLERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide variable frequency controllers (VFC) in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Variable Frequency Controller.
- B. Control Interface.

1.3 SUBMITTALS

- A. Provide manufacturer's descriptive literature, installation instructions, operating instructions, and maintenance and repair data.
- B. Provide all electric wiring control diagrams for the VFC operation.

1.4 QUALITY ASSURANCE

- A. Test all integrated circuits (TTL) and all components used for circuit board construction to an acceptance criteria of 0.5% AQL (Accepted Quality Level).
- B. Conduct in-circuit testing of all printed circuit boards to insure proper mounting and correct value of all components.
- C. Burn-in all printed circuit boards for at least 24 hours, at a minimum of 70°C, and temperature cycled.
- D. Functionally test final printed circuit board assemblies via computerized test equipment where all tests and acceptance criteria are preprogrammed and test results are stored as detailed quality assurance data. The Engineer and Commissioner may witness the factory tests. Provide at least two (2) weeks written notice prior to start of the factory test.
- E. Combine-test all fully assembled controls for performance and functionality at the manufacturer's factory with fully loaded induction motors. Analyze the combined test data to insure adherence to quality assurance specifications.
- F. Design and build the variable frequency controllers to the following standards:
 - 1. E.T.L. and/or U.L.
 - 2. NEMA - ICS-3-303.
 - 3. F.C.C. Class A.
 - 4. IEEE STD 444 (ANSI C34.3).

PART 2 - PRODUCTS

2.1 GENERAL

- A. The manufacturer must provide local, in-house service backup which must include factory trained personnel specifically trained for electrical component maintenance and troubleshooting.
- B. Purchase motors and variable frequency controllers from a single source. Verify in writing that the motors and variable frequency controllers operate together as a system; fully compatible and without excessive noise or vibration.

2.2 DESIGN

- A. Provide 460 VAC variable frequency controllers of the pulse width modulated (PWM) design that operates directly from three phase, 460 VAC $\pm 10\%$, 60 hertz utility power. The VFC will generate a sine-coded, adjustable voltage/frequency three phase output for complete speed control of any NEMA B squirrel cage induction motor. The VFC to maintain a 120% current overload capability for 60 seconds with automatic stall prevention and voltage boost to prevent nuisance tripping during load or line side transient conditions. The VFC not to induce voltage line matching distortion back to the building electrical power supply system and to maintain a power factor of not less than 0.95 throughout its speed range. Provide a tuned line filter, adjusted as required to prevent any electrical distortion back into the building electrical power supply system. Comply with FCC Class A noise emissions standard and so label.
- B. Provide the variable frequency controller with the following basic design:
 - 1. Converter: Consists of a modularized diode rectifier and capacitor assembly which will first convert, then filter and maintain a fixed DC voltage source from the fixed voltage and frequency input.
 - 2. Inverter: Inverter uses power transistor semiconductors with a minimum rating of 1100 VAC on 460 VAC controls to invert the converter generator fixed DC voltage into a sine-coded pulse width modulated output.
 - 3. Control Logic: Consists of a single printed circuit board and incorporates an 8-bit, or larger, microcomputer central processing unit to control all inverter, converter, base drive and external interface functions.
 - 4. Terminal strip for input signals from Building Control System for remote start/stop and speed control signal capabilities. Refer to Section 23 09 23. for interface and coordination.
 - 5. Enclosure: NEMA 1 enclosure, for typical indoor locations. Utilize NEMA Type 32 for outdoor locations and NEMA Type 4 for wet locations subject to water spray or very high humidity.

2.3 FEATURES

- A. Include with the variable frequency controller the following minimum design features as standard:
 - 1. Sine-coded, pulse width modulated output.
 - 2. Eight (8) bit, or larger, microcomputer control logic.
 - 3. Maximum and minimum speed adjustment capability.
 - 4. Controlled speed range of 20:1, or greater.
 - 5. Overload capability of 20% for 60 seconds.
 - 6. Process follower 4-20 mA or 1-10 VDC, input.
 - 7. Minimum of three (3) selectable output frequency ranges.
 - 8. Fifteen selectable volts/hertz patterns.

9. Touch-pad operator controls or adjustable potentiometer with at least four (4) segment digital frequency/speedometer or digital readout displaying: output frequency, status, percent current, and percent response signal.
 10. Input disconnect/circuit breaker with thru-door handle.
 11. Torque or current limiting circuit.
 12. Coast or ramp to stop.
 13. Electronic reversing.
 14. Adjustable acceleration and deceleration.
 15. Fault indicators.
 16. Fault contacts for interface with Section 23 09 23.
 17. External start/stop signal capability from the building control system.
 18. External speed control from a 4-20 mA or 0-10 VDC signal from control system.
- B. Provide the variable frequency controller with the following protective features as a minimum:
1. Ground fault protection.
 2. Electronic thermal motor overload or current limit control.
 3. Current limited stall prevention during acceleration, deceleration, and run conditions.
 4. Automatic restart, after momentary power loss or momentary over-voltage. No restart into ground fault.
 5. Controls for start into a rotating motor.
 6. Anti-windmill protection.
 7. Fault indicators shall indicate the following fault conditions:
 - a. Over-current
 - b. Overload
 - c. Over-voltage
 - d. Over-temperature
 - e. Control function error.
 8. DC bus discharge indicator.
 9. Current limiting DC bus fuse.
 10. Isolated operator controls.
 11. Phase-to-phase short circuit protection.
 12. Heat sink over-temperature protection.
- C. Make the following adjustments available on all variable frequency controllers:
1. Acceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
 2. Deceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
 3. Volts/hertz adjustments.
 4. Maximum frequency range.
 5. Minimum frequency.
 6. Maximum frequency.
 7. Carrier frequency.
 8. Torque limit.
 9. The inverter supplier to provide line filters on the line to prevent interference from the line to the drive and prevent any electrical harmonic distortion back to the building electrical power supply system.
 10. Provide a signal isolator to isolate the control signal to and from the inverter drive.
- D. Provide the variable frequency controller with the following additional features:
1. One (1) door interlocked main power input disconnect circuit breaker to provide positive shutdown of all input power to the drive.
 2. The complete circuit breaker and overload relay package shall be mounted in the inverter cabinet or may also be available in its own separate enclosure adjacent to the inverter.

3. 2200 Microfarad ride-through capacitor which shall provide assistance to maintain the D.C. bus voltage for a two-second momentary power loss or furnish automatic restart capability which allows restart into a rotating motor.
4. One (1) complete set of spare parts for each size inverter consisting of the following:
 - a. Control fuses.
 - b. Control board.
 - c. Drive board.
 - d. Transistors.
 - e. Capacitors.

E. Manual Bypass

1. Provide all the circuitry necessary to safely transfer the motor from the VFC to the power line, or from the line to controller at zero speed. Include a separate cabinet for the bypass circuit to house all devices which must be energized at either 480 VAC or 115 VAC.
2. On the bypass cabinet include a door interlocked main power input disconnect circuit breaker, providing positive shutdown of all input power to both the bypass circuitry and the VFC. Motor protection to be provided in both the "Controller" mode and the "Bypass" mode by a motor overload relay.
3. The bypass cabinet door to include a "Controller-Off-Bypass" selector switch and "Controller Mode" indicator light and a "Bypass Mode" indicator light. Provide terminals for remote light indication of mode selection.
4. Include a door interlocked input disconnect circuit breaker for the bypass circuit installed in the VFC to facilitate troubleshooting and testing of the controller safely, both energized and de-energized, while operating in the "Bypass" mode.
5. Factory install the manual bypass with magnetic contactors.
6. Controller to be constructed so as to allow power to be disconnected from either mode yet maintain power to the other mode for uninterrupted motor operation. This disconnecting means must completely isolate either mode for maintenance purposes.

2.4 ENVIRONMENT

- A. Design the variable frequency controller to operate within the following environmental and service conditions:
1. Ambient service temperature - 10°C to 40°C.
 2. Ambient storage temperature - 20°C to 60°C.
 3. Humidity - noncondensing to 90%.
 4. Altitude to 3300 feet.
 5. Service factor - 1.0.
 6. Input voltage - three phase, 460 VAC \pm 10%.
 7. Input frequency - 60 hertz \pm 5%.

2.5 ACCEPTABLE MANUFACTURERS

- A. Asea-Brown-Boveri Parametrics
- B. Robicon
- C. Westinghouse
- D. Toshiba
- E. Or Approved Equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All drive components including motor, sheaves, belts, fans pumps must have vibration levels checked at all speeds between 20 percent and 100 percent of the driven unit's design rpm. Vibration must be checked at fan pump shaft bearings in radial (vertical and horizontal) and axial directions. If excessive vibration is found at any frequency, special balancing and structural changes must be provided to minimize harmonic vibrations.

END OF SECTION 23 85 00

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SECTION 26 00 02 – ELECTRICAL SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the electrical systems as called for in the Contract Documents, and according to applicable codes and regulations. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

1.2 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Commissioner, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the City of New York and Engineer.

1.3 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of NEC, OSHA, U.L. and all other applicable codes and the rules, regulations and requirements of the utility companies serving the building.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.
- G. All equipment shall meet or exceed minimum requirements of NEMA, IEEE, UL, ADA, NFPA and OSHA.

1.4 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations

ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
ASA	Acoustical Society of America
ASTM	American Society For Testing and Materials
BIL	Basic Impulse Level
CBM	Certified Blast Manufacturers
EIA	Electronic Industries Association
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories, Inc.
FM (FMS)	Factory Mutual (Factory Mutual System)
FS	Federal Specifications
IEEE	Institute of Electrical and Electronic Engineers
IES/NA	Illuminating Engineering Society of North America
IPCEA	International Power Cable Engineers Association
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NYCEC	New York City Electrical Code
NFPA	National Fire Protection Association
OEM	Original Equipment Manufacturers
OSHA	Occupational Safety and Health Administration
U.L.	Underwriters Laboratories

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Engineer.

- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project will not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Engineer and relocate work incorrectly installed as determined by the Engineer.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Install materials and equipment with qualified trades people.
- G. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- H. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ANSI standards, and as approved by local authorities having jurisdiction.
- I. Fully lubricate equipment when installed.
- J. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- K. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- L. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Engineer before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- M. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.
- N. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.

2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Refer to General Conditions.

2.3 REVIEWS

- A. Refer to General Conditions.

PART 3 - EXECUTION

3.1 DRAWINGS & PRODUCT DATA

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Engineer's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- D. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- E. Prepare and submit detailed shop drawings for major duct banks and other distribution services in $3/8" = 1'-0"$ scale, including locations and sizes of openings in floor decks, walls and roofs.
- F. For each room or area of the building containing switchboards, panelboards, motor control centers, transformers, emergency generators, substations, dimming cabinets, sound system cabinets, bus ducts, telephone backboards, signal system backboards, fire alarm terminal cabinets, fire alarm control panels, consoles, etc. the following is required to be submitted for review and acceptance at the time of the equipment submittal.

1. Floor Plans:

- a. Plan views (including sections & elevations when requested) of the equipment indicated in the exact location in which it is intended to be installed. These plans shall be of a scale not less than $1/4" = 1' - 0"$. They shall be prepared in the following manner:
 - 1) Indicate the physical boundaries of the space including door swings and ceiling heights and ceiling types (as applicable).
 - 2) Illustrate all electrical equipment proposed to be contained therein. Include top & bottom elevations of all electrical equipment. The drawings must be prepared utilizing the dimensions contained in the individual equipment submittals.
 - 3) Illustrate all other equipment therein such as conduits, detectors, luminaires, ducts, registers, pullboxes, wireways, structural elements.
 - 4) Note the operating weight of each piece of equipment.
 - 5) Note the heat release from each piece of electrical equipment in terms of BTU per hour. This information shall be that which is supplied by the respective manufacturers.
 - 6) Illustrate all concrete pads, curbs, etc.
 - 7) Note all code clearances from all equipment by dimensions.
 - 8) Indicate maximum normal allowable operating temperature for each piece of equipment (as per each respective manufacturer's recommendation).
 - 9) On engine generator layout plans, indicate position of radiator and direction of air movement and provide manufacturer's signed statement that engine will operate within approved temperature ranges as shown on the plans.

2. Equipment Removal Routes:

- a. Provide in conjunction with the above, a set of documents reproduced from the then current Contract Documents indicating the methods of equipment removal for all major pieces of equipment.
 - b. Indicate on floor plans by means of arrows, the complete path for equipment removal.
 - c. Where equipment will be required to be hung temporarily from a slab or beam, note same on the submission including the weight of the equipment to be hung and the weight of the hoisting equipment.
 - d. Note all heights of conduits, ductwork, link beams, doorways, transoms, piping, etc. in the proposed path assuring that adequate headroom is provided.
- G. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Engineer, or for deviations from requirements in the Contract Documents. Understand clearly that the Engineer's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- H. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Engineer and will be returned to the Contractor for resubmittal.
- I. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Commissioner, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

3.2 CONTRACTOR'S COORDINATION DRAWINGS

- A. Refer to General Conditions.

3.3 COORDINATION OF WORK

- A. The electrical drawings show the general arrangement of equipment and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. The locations of lighting fixtures, outlets, panels and other equipment indicated on the drawings are approximately correct, but they are understood to be subject to such revision as may be found necessary or desirable at the time the work is installed in consequence of increase or reduction of the number of outlets, or in order to meet field conditions or to coordinate with modular requirements of ceilings, or to simplify the work, or for other legitimate causes.

- C. Exercise particular caution with reference to the location of panels, outlets, switches, etc., and have precise and definite locations approved by the Commissioner before proceeding with the installation.
- D. The drawings show only the general run of raceways and approximate location of outlets. Any significant changes in location of outlets, cabinets, etc., necessary in order to meet field conditions shall be brought to the immediate attention of the Commissioner and receive his approval before such alterations are made. All such modifications shall be made without additional cost to the City of New York.
- E. Obtain from the Commissioner in the field the location of such outlets or equipment not definitely located on the drawings.
- F. Circuit "tags" in the form of numbers are used where shown to indicate the circuit designation numbers in electrical panels. Show the actual circuit numbers on the finished record tracing and on a typed panel directory card. Where circuiting is not indicated, electrical trade must provide required circuiting in accordance with the loading indicated on the drawings and/or as directed.
- G. The drawings generally do not indicate the number of wires in conduit for the branch circuit wiring of fixtures, and outlets, or the actual circuiting. Provide the correct wire size and quantity as required by the indicated circuiting and/or circuit numbers indicated and control, wiring diagrams, if any, specified voltage drop or maximum distance limitations, and the applicable requirements of the NEC.
- H. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- I. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto including finished suspended ceilings.
- J. Wherever work interconnects with work of other trades, coordinate with other trades to insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (remote ballast, pull boxes, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- K. Consult with other trades regarding equipment so that, wherever possible, motor controls and distribution equipment are of the same manufacture.
- L. Furnish and set sleeves for passage of bus ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each bus duct and conduit passing through building surfaces. Provide fireproofing where required.
- M. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc. which pass through rated walls, partitions and floors.
- N. Provide detailed information on openings and holes required in precast members for electrical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- O. Provide required supports and hangers for conduit and equipment, designed so as not to exceed allowable loadings of structures.
- P. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Engineer and obtain from him written instructions for changes necessary in the work. Install and coordinate

the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.

- Q. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Engineer for review. At completion include a set of such drawings with each set of as-built drawings.
- R. Contractor shall furnish services of an experienced Superintendent, who shall be in constant charge of all work, and who shall coordinate his work with the work of other trades. No work shall be installed before coordinating with other trades.
- S. Coordinate with the local Electric Utility Company and the local Telephone Company as to their requirements for service connections and provide all necessary materials, equipment, labor and testing.
- T. Coordinate, with contractors for work under other Divisions of this specification, for all work necessary to accomplish this contractor's work.

3.4 CUTTING AND PATCHING

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of conduits or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner approved by the Commissioner.
- C. Where conduits or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

3.5 RESPONSIBILITY FOR EVALUATION

- A. The Engineer makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

3.6 PAINTING

- A. All manufactured electrical equipment such as switchgear, control equipment, lighting fixtures, etc., shall have factory-applied finish as specified in the appropriate article in the Electrical Parts of the Specifications.
- B. All other uncoated steel items such as boxes, supports, hangers, rods, etc., shall be galvanized or have a shop coat of paint applied under this Part of the Specification. Normally, shop coats shall be an approved primer containing at least 50 percent rust inhibitive pigment, applied before assembling the different parts.
- C. Include painting and retouching of:
 - 1. Prefinished enclosures of switchgear, unit substations, panelboards, transformers, switches, wireways, bus ducts, etc., where the finish has been slightly damaged in transit before assembling the different parts.
 - 2. Any woodwork furnished in the Electrical Work.
 - 3. Fixture hangers, except those received from manufacturers that are prefinished.
 - 4. Miscellaneous iron brackets and supports.
 - 5. Steel conduits buried in earth.
- D. Woodwork installed under this Part of the Specification shall be finished with filler sealer plus two (2) coats of polyurethane varnish.

3.7 FIRE ACCESS TO FIRE APPARATUS

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

3.8 EQUIPMENT PAD AND ANCHOR BOLTS

- A. Concrete pads for various pieces of equipment will be furnished by another Contractor under another Division.
- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

3.9 DELIVERY, DRAYAGE AND HAULING

- A. Include all drayage, hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.

- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the City of New York.

3.10 MOUNTING HEIGHTS

- A. Unless otherwise noted or required because of special conditions, locate outlets as follows:
 - 1. Mounting heights shall conform to ADA requirements.
 - 2. Heights listed are from finished floor to center of device. Verify exact locations with the Commissioner before installation.
 - a. Convenience and Signal Outlets: 15 inches unless otherwise noted.
 - b. Lighting Switches: 48 inches (unless otherwise noted on Architectural details).
 - c. Disconnect Switches and Motor Controllers: 5 feet.
 - d. Wall Telephone Outlets: 15 inches. Wall phones: 48 inches.
 - e. Exit Lights: 2 inches above top of door to bottom.
 - f. Wall-Mounted Fixtures: 7 feet 6 inches or over mirrors (as applicable) or 1 foot below ceilings lower than 8 feet. Stairwell fixtures to be mounted 8 feet 6 inches above finished floor or 1 foot below ceiling.
 - g. Visual Alarms: 80 inches above the highest floor level within the space or 6 inches below the ceiling whichever is lower.
 - h. Fire Alarm Pullstations: 4 feet.
 - i. Fire Warden Stations: 4 feet.

3.11 DEMOLITION AND CONTINUANCE OF EXISTING SERVICES

- A. All existing electrical services not specifically indicated to be removed or altered shall remain as they presently exist.
- B. Should any existing services, etc., interfere with new construction, the Contractor shall (after obtaining written approval from the Commissioner) alter or reroute such existing equipment to facilitate new construction.
- C. Under no circumstances shall existing services, etc., be terminated or altered unless deemed necessary by the Commissioner or specified herein; also, prior to altering any existing situation, the Contractor shall notify the Commissioner in writing giving two (2) weeks advance notice of planned alteration.
- D. It shall be solely the Contractor's responsibility to guarantee continuity of present facilities (with respect to damage or alteration due to new construction) and any unauthorized alteration to existing equipment shall be corrected by the Contractor to the Commissioner's satisfaction at the Contractor's expense.

3.12 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an

acceptable manner to the Commissioner, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.

- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

3.13 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.

3.14 FASTENINGS

- A. Fasten electric work to building structure in accordance with the best industry practice and the following.
- B. As a minimum procedure, where weight applied to the attachment points is 100 pounds or less, fasten to building elements of:
 - 1. Wood: with wood screws.
 - 2. Concrete and solid masonry: with bolts and expansion shields.
 - 3. Hollow construction: with toggle bolts.
 - 4. Solid metal: with machine screws in tapped holes or with welded studs.
 - 5. Steel decking or subfloor: with fastenings as specified below for applied weights in excess of 100 pounds.
- C. As a minimum procedure, where weight applied to building attachment points exceeds 100 pounds, but is 300 pounds or less, conform to the following:
 - 1. At concrete slabs utilize 24" x 24" x 1/2" steel fishplates on top with through bolts. Fishplate assemblies shall be chased in and grouted flush with the top of slab screed line, where no fill is to be applied.
 - 2. At steel decking or subfloor for all fastenings, utilize through bolts or threaded rods. The tops of bolts or rods shall be set at least one inch below the top fill screed line and grouted in. Suitable washers shall be used under bolt heads or nuts. In cases where the decking or subfloor manufacturer produces specialty hangers to work with his decking or subfloor such hangers shall be utilized.
- D. Where weight applied to building attachments points exceeds 300 pounds, coordinate with and obtain approval of Commissioner and conform to the following:
 - 1. Utilize suitable auxiliary channel or angle iron bridging between building structural steel elements to establish fastening points. Bridging members shall be suitably welded or clamped to building steel. Utilize threaded rods or bolts to attach to bridging members.
- E. For items which are shown as being ceiling mounted at locations where fastening to the building construction element above is not possible, provide suitable auxiliary channel or angle iron bridging tying to the building structural elements.

3.15 PROHIBITED LABELS AND IDENTIFICATIONS

- A. Prohibited Markings: In all public areas, tenant areas and similar locations within the project, the inclusion or installation of any item, element or assembly which bears on any exposed surface any name, trademark, or other insignia which is intended to identify the manufacturer, the vendor, or other source(s) from which such object has been obtained, is prohibited. Also prohibited is the inclusion or installation of any article which bears visible evidence that an insignia, name, label, or other device has been removed.
- B. Exception: Required Underwriters' Laboratory labels shall not be removed nor shall identification specifically required under the various technical sections of the Specifications be removed.

3.16 DATE OF COMPLETION AND TESTING OF ELECTRICAL SYSTEMS

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.
- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Engineer and Commissioner for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

3.17 OPERATING INSTRUCTIONS

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.

3.18 OPERATING AND MAINTENANCE BOOKS

- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit three (3) final copies of operating and maintenance data books for review at least ten (10) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Engineer six (6) months after notice to proceed has been given by the City of New York or Commissioner. Include in the initial copies all the information in Paragraph 5. below, except Item 5.4).

D. Maintenance instruction manuals to include complete oiling, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads.

E. Include the following information where applicable:

1. Identifying name and mark number.
2. Locations (where several similar items are used, provide a list).
3. Complete nameplate data.
4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
5. Parts list.
6. Performance curves and data.
7. Wiring diagrams.
8. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
9. List of spare parts recommended for normal service requirements.
10. Assembly and disassembly instructions with exploded view drawings where available.
11. Troubleshooting diagnostic instructions where applicable.

3.19 EARLY OCCUPANCY

A. Refer to General Conditions.

END OF SECTION 26 00 02

SECTION 26 00 05- ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work. Coordinate access doors with Sections 08 31 13 and 23 00 05.

1.2 WORK INCLUDED

- A. Access Doors in Drywall (See architectural drawings and specifications).
- B. Access Doors in Ceilings (See architectural drawings and specifications).
- C. Access Doors in Masonry.
- D. Fire Rated Access Doors.
- E. Color Coded Buttons.

1.3 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction by location within the project.

PART 2 - PRODUCTS

- 2.1 Wherever access is required through walls or ceilings to junction boxes, pull boxes, control panels, devices, or other concealed equipment installed under this Division, furnish a hinged access door with flush screwdriver operated cam locks and frame as follows:

- A. Drywall construction--Milcor Style DW, or approved equal from manufacturers listed in Section 23 00 05 Article 2.
- B. Finished acoustical tile ceiling--Milcor Style AT, or approved equal from manufacturers listed in Section 23 00 05 Article 2.
- C. Finished plaster ceiling--Milcor Style AP, or approved equal from manufacturers listed in Section 23 00 05 Article 2.
- D. Finished plaster walls or ceramic tile--similar to doors required for finished acoustical tile ceiling.
- E. Plaster or masonry walls and ceilings outside offices and in other finished areas exposed to view--Milcor Style K or M, or approved equal from manufacturers listed in Section 23 00 05 Article 2.
- F. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.

- G. Access doors will be installed under another Division. Coordinate all sizes and locations with General Contractor.
 - H. No access door shall be installed until location and type have been approved by the Commissioner.
- 2.2 Furnish color coded buttons or tabs to indicate location of pull boxes, control panels, devices, or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate sizes and location of all access doors with General Contractor.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of pull boxes, control panels, devices, etc. locations indicating proposed access door locations for review by the Commissioner prior to installation of pull boxes, control panels, devices, etc. Include equipment of other trades on the Drawing.

END OF SECTION 26 00 05

SECTION 26 02 50 – SYSTEMS IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide fixed identification of all distribution equipment and conductors in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fixed identification for:
 - 1. Switchboards.
 - 2. Motor Control Centers.
 - 3. Panelboards and Load Centers.
 - 4. Multiple Meter Centers.
 - 5. Bus Ducts.
 - 6. Feeder Switches.
 - 7. Disconnect Switches.
 - 8. Feeder Switches (Fuse Identification).
 - 9. Remote Smoke Detector Lamps.
 - 10. Wall Plates.
 - 11. Motor Controllers.
 - 12. Fire Alarm Terminal Cabinets.
 - 13. Automatic Transfer Switches.
 - 14. Generator Control Cabinets.

1.3 SUBMITTALS

- A. Identification procedures shall be noted and scheduled on the applicable shop drawings.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. Industry standards shall apply.

PART 2 - PRODUCTS

- 2.1 Unless otherwise noted, nameplates shall be black bakelite plates with white engraved upper case letters enclosed by white border on beveled edge.
- 2.2 Nameplates for equipment supplied by the emergency system shall be red bakelite with white lettering.
- 2.3 All nameplates must be engraved and must be secured with rivets, brass or cadmium plate screws. The use of Dymo type or the like is unacceptable.

2.4 Lettering heights unless otherwise noted must be as follows:

Item	Lettering Height
Switchboards	2"
Motor Control Centers	2"
Panelboards & Load Centers	1/2"
Multiple Meter Centers	1/2"
Bus Ducts	1/2"
Feeder Switches	1/4"
Disconnect Switches	1/2"
Feeder Switches (Fuse Identification)	1/4"
Remote Smoke Detector Lamps	1/8"
Wall Plates	1/8"
Motor Controllers	1/4"
Fire Alarm Terminal Cabinets	1/2"
Automatic Transfer Switches	1/2"
Generator Control Cabinets	1"

2.5 Cable tags must be flameproof secured with flameproof non-metallic cord.

2.6 Nameplate inscriptions must bear the name and number of equipment to which they are attached as indicated on the Drawings. The engineer reserves the right to make modifications in the inscriptions as necessary.

2.7 The Commissioner reserves the right to request additional nameplates at time of review of shop drawings and upon site observations. These shall be furnished at no additional cost to the City of New York.

2.8 Acceptable Manufacturers.

- A. Seton.
- B. Big City Manufacturing.
- C. Rowmark
- D. Or approved equal.

PART 3 - EXECUTION

3.1 SWITCHBOARDS, MULTIPLE METER CENTERS AND MOTOR CONTROL CENTERS

- A. Furnish and install a master nameplate for each switchboard, substation, multiple meter center and motor control center engraved with the equipment identification indicated on the Drawings. Mount at top of incoming section.
- B. Provide on each main switch an identifying nameplate. Where multiple mains are employed each switch shall be numbered. Inscription shall be "Main Switch" or "Main Switch No. 1" et al.

3.2 PANELBOARDS AND LOAD CENTERS

- A. Furnish and install a nameplate for each panelboard and load center engraved with the identification indicated on the Drawings. Mount at top of panel.
- B. After installations are complete, provide and mount under sturdy transparent shield in the directory frame of each panel door, a neat, accurate and carefully typed directory properly identifying the lighting, receptacles, outlets, and equipment each overcurrent device controls.
- C. Include on directory the panel or load center identification, the cable and raceway size of panel feeder, and the feeder origination point.

3.3 DISCONNECT SWITCHES

- A. Furnish and install a nameplate for each disconnect switch engraved with the equipment designation which the disconnect serves.

3.4 MOTOR CONTROLLERS

- A. Furnish and install a nameplate for each motor controller or combination motor controller for both individual motor controllers and those in a motor control center, etc. Engraving must indicate the motor served and the type of service (e.g., AC-8 - 1st floor supply, EF-2 - electric closet exhaust).

3.5 BUS DUCTS

- A. Where multiple bus ducts are employed, furnish and install nameplates for bus ducts engraved with bus duct designation. Install at each bus duct in every electrical closet and on horizontal runs at not less than 50' on center.

3.6 FEEDER SWITCHES

- A. Furnish and install for each feeder switch including, but not limited to those in switchboards, those in switch and fuse panelboards, those take-offs at bus ducts, those in motor control centers, those in multiple meter centers, etc. two (2) nameplates as follows.
 - 1. The first nameplate must be white background with red lettering. Engrave with the words "REPLACE ONLY WITH FUSE". Engrave with proper fuse trade name and ampere rating (i.e. Bussman LPS-R 100).

2. The second nameplate shall indicate the load served, the size and type of cable and raceway example:

LP-4, LP-5, LP-6
4#500 MCM-THW-CU-3-1/2"C.

3.7 REMOTE SMOKE DETECTOR LAMPS AND TEST STATIONS

- A. Furnish and install a nameplate on each remote smoke detector lamp and/or test station. Engraving must indicate the location of the device to which the lamp is connected as approved by the Engineer.

3.8 SWITCHES

- A. Furnish and install an engraved nameplate for each switch controlling loads which are not local to the switch. Engraving shall be as directed by the Engineer.

3.9 PULLBOXES, ENCLOSURES AND CABLE TERMINATIONS

- A. Furnish and install cable tags on each cable which enters a pullbox, enclosure, switchboard and at terminations. Mark tags with type written inscription noting the load served, type and size of cable and the overcurrent device protecting the cable.

3.10 FIRE ALARM PHONE JACKS AND WARDENS STATIONS

- A. Furnish and install a nameplate on each warden's station and portable fire alarm phone jack. Engraving must indicate the floor and location of the station.

3.11 FREEZE PROTECTION

- A. Install decal type labels on each pipe which is provided with freeze protection.
B. Labels shall be inscribed "CAUTION -- ELECTRIC HEAT TRACING".
C. Affix labels to the thermal insulation not more than 20' on center but not less than every length of pipe.

3.12 FIRE ALARM TERMINAL CABINETS

- A. Furnish and install on each fire alarm terminal cabinet an approved nameplate.
B. Nameplates shall indicate floor and where multiple terminal cabinets are installed a prime designation for each cabinet (e.g. FATC-1A, FATC-1B).
C. Terminal shall be permanently identified in an approved manner.

3.13 DIMMING CABINETS

- A. Furnish and install on each dimming cabinet a master nameplate similar to that required for panelboards.
B. Where dimmer banks or circuits therein are served via a normal and emergency source provide warning nameplates as follows: "WARNING THIS DIMMERBANK IS ALSO SERVED FROM

PANEL CIRCUITS " inscribe panel and circuit numbers. Nameplate to consist of red letters on a white background.

C. Provide typed directories similar to that required for panelboards.

3.14 CAPPING AND STAKING

A. Wherever raceways are for future use and are terminated outside of the structure, stake the location with a 2' long 1" x 1" wooden stake having a conspicuous colored flag.

B. Provide metal markers inserted into 8" D x 12" concrete ballast at all raceway terminations exterior to the structure. Inserts must state the date the raceway was installed, the size of the raceway and the point of the raceway termination.

3.15 LUMINAIRES

A. Where connected to other than 120 volt circuit, provide each fluorescent or high intensity discharge fixture with the ballast voltage stenciled on the ballast cover in letters not less than ½ inch high.

3.16 AUTOMATIC TRANSFER SWITCHES

A. Furnish and install a red nameplate for each automatic transfer switch. Engraving shall indicate the switch number, the load served, and the sources of normal and generator power.

3.17 GENERATOR CONTROL PANEL

A. Furnish and install a red nameplate for each generator control panel. Engraving shall indicate the generator controlled by the panel.

END OF SECTION 26 02 50

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SECTION 26 02 65 – TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide complete testing of equipment and systems throughout in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Testing for:
 - 1. Wire and Cable (600 Volts and Below).
 - 2. Motor Controllers.
 - 3. Motors.
 - 4. Engine Generator and Automatic Transfer Switches.
 - 5. Switchboards.
 - 6. Life Safety Systems.
 - 7. Cable Snow Melting System.
 - 8. Freeze Protection.
 - 9. Lightning Protection System.
 - 10. Ballasts.
 - 11. Air Handling Plenums and Luminaires.
 - 12. Grounding.
 - 13. Uninterruptible Power Source.
 - 14. Three Phase Receptacles.

1.3 SUBMITTALS

- A. Provide test results as required herein and in each section of Division 26.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents comply with the latest applicable provisions and the latest recommendations of the following:
 - 1. Industry standards shall apply except as otherwise specified.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide all labor, premium labor and materials required by shop and field testing as specified in the Contract Documents and as required by the authorities having jurisdiction.

2.2 SYSTEMS

- A. The following systems are to be tested, inspected and certified.
 - 1. Wire and Cable (600 Volts and Below):

- a. Inspect all splices and terminations and make mechanically and electrically tight during a fifteen (15) day period immediately prior to final acceptance of the work.
 - b. Perform standard 600 volt insulation test with "megger" tester and all conductors. Test shall show insulation resistance in excess of minimum values required by the N.E.C. Submit certification to the Commissioner.
2. Motor Controllers:
- a. Submit with certification in tabular form a complete listing of all motors on the project for which motor controllers have been furnished. Include on this listing, the nameplate full load amperes of each motor and the size overload heaters installed in each motor controller.
3. Motors:
- a. Test all motors under load and verify that motor rotation is correct.
4. Engine Generator and Automatic Transfer Switches:
- a. Factory Testing:
 - 1) Prior to shipment of the engine-generator set from the factory, a certified load test shall be performed and the results submitted to the Commissioner for approval before shipment of the unit. The test shall verify the proper operation of all alarms and shut down circuits.
 - 2) The test shall also demonstrate compliance with the set performance criteria as specified herein.
 - 3) Testing shall be performed as follows:
 - a) In a period of five (5) hours with a loading of 25, 50, 75, 100 and 110 percent of rated load. Step loading procedure shall be utilized (i.e. 25 percent first hour, 50% second hour, etc.).
 - b) Shock load of 100% of rated output, step loading is unacceptable. Maintain 100% load for four (4) hours.
 - 4) Factory testing shall be accomplished using resistive and reactive load banks to match the Kilowatt and KVA requirements set forth in the Documents.
 - b. Field Testing:
 - 1) After completion of the installation, the Contractor shall arrange with the Commissioner for a load test of the engine generator and related automatic transfer switches. The generator shall be required to start-up and accept full load within 10 seconds. The unit shall continue to operate for not less than four (4) hours at 100 percent rated load. The test shall also include demonstrating that all alarms, signals, shut down devices, elevator recall, etc., are functioning properly. The Contractor shall be responsible for securing all temporary load-banks, etc., required for the tests. Actual building loads shall be utilized for this testing, augmented with temporary load banks as required.
 - 2) This Contractor shall supply all fuel for the testing. Upon acceptance by the Commissioner, the day tank and main fuel oil tank shall be filled to capacity after testing.

5. Switchboards:

- a. At the completion of the work each each switchboard shall be field tested in the presence of the Commissioner. Tests to be conducted by the service organization of the manufacturer.
- b. Tests shall include the following:
 - 1) Operation of each disconnecting means under load.
 - 2) Operation of all metering equipment.
 - 3) Operation of all alarm devices.
 - 4) Operation of forced air cooling system.
 - 5) Operation of all key interlocks.
- c. The manufacturer shall observe all cable bracing both incoming and outgoing and certify that same is provided in accordance with the manufacturer's recommendations.
- d. The ground fault systems shall be set at the level specified by the switchboard supplier. Each system shall be tested by checking coordination between ground fault and phase to ground fault of a 1P-20 ampere lighting branch circuit.
- e. Buswork shall be retorqued in accordance with manufacturer's recommendations. Submit certification of same.

6. Life Safety Systems:

- a. All wiring must be inspected and tested to insure that there are not grounds, opens or shorts. The minimum allowable resistance between any two conductors or between conductors and ground is ten (10) megohms as measured with a 500 volt megger after all conduit, conductors, detector bases, etc., have been installed, but before the detector devices are plugged into the bases or end-of-line devices installed.
- b. The Contractor must perform all electrical and mechanical tests required by the equipment manufacturer's form. All test and report costs must be in the Contract price. A checkout report is to be prepared by the technician and submitted in triplicate, one copy of which will be registered with the equipment manufacturer. The report is to include, but not be limited to:
 - 1) A complete list of equipment installed and wired.
 - 2) Indication that all equipment is properly installed and functions and conforms with these specifications.
 - 3) Tests of individual zones as applicable.
 - 4) Serial numbers, locations by zone and model number for each installed detector.
 - 5) Voltage (sensitivity) settings for each ionization detector as measured in place.
 - 6) Response time on detectors.
 - 7) Contractor shall submit a certified report indicating the following:
 - a) Operating all manual stations and all detectors that can be reset.
 - b) Verifying line supervision of each initiating and indicating circuit.
 - c) Verifying the operation of each initiating circuit.
 - d) Verifying the operation of all indicating devices.
 - e) Verifying the operation of all alarm-initiated functions.
 - f) Verifying full operation of the F.C.I.P.

7. Cable Snow Melting System:
 - a. Each heater cable shall be tested four (4) times for resistance, continuity and insulation at the following times:
 - 1) Before cable is installed.
 - 2) After cable is installed and before concrete is poured.
 - 3) After concrete is poured.
 - 4) At time of acceptance.
 - b. A written report of the test results for each specific cable shall be provided to the Commissioner upon completion of the tests.
 - c. Any cables failing the tests by lack of continuity, improper resistance, or insulation failure shall be replaced.
 - d. Test shall indicate not less than 20 megohms with a 500 volt D.C. ohmmeter from sheath to conductor.
 - e. Prior to shipment, each heater unit shall be subjected to a high potential test of 1600 volts, 60 cycles, for one minute, from conductor to sheath and the resistance shall measure not less than 20 megohms when using a 500 volt D.C. ohmmeter. Each heater shall be tagged with a metal tag indicating the length of hot section, length of cold section, maximum voltage, and the resistance.
8. Freeze Protection:
 - a. Before and after the heaters have been completely installed on the lines, but before pipes are insulated, the following tests shall be made:
 - 1) Check the continuity of the heating cable to be sure the conductors have not been broken during installation.
 - 2) Measure actual applied voltage and load current.
 - b. Repeat the above tests and checks after pipe insulation is applied and installation is complete.
 - c. For each heating cable, the heater number and the test results obtained for each of the tests above shall be recorded both before and after installation of the heating cable and application of the insulation.
 - d. A qualified manufacturer's representative shall be required to make a final inspection prior to application of insulation and before start-up.
9. Lightning Protection System:
 - a. Provide certified Master label for lightning protection system from U.L. Attach same to building where directed by the Commissioner.
10. Ballasts:
 - a. Submit manufacturer's certification that ballasts and transformers for discharge type lamps comply with the latest C.B.M. specifications which have been issued.
11. Air Handling Plenums and Luminaires:
 - a. For recessed luminaires to be mounted in ceilings utilized as air handling plenums, submit manufacturer's certification that they, together with their external connections, are suitable for the purpose.

12. Emergency Battery System, Packs and Quartz Standby Units:
 - a. Each emergency battery pack and system shall be shown to operate satisfactorily. This shall be accomplished by the use of the unit mounted test switch as one test. The second test shall be the interruption of power to the unit.
 - b. Quartz standby lamps in H.I.D. luminaires shall be tested to show proper operation by testing as listed above.
13. Grounding:
 - a. Upon completion of the electrical grounding system, the contractor shall test the grounding system for stray currents, grounds, shorts, etc. These tests shall be performed with approved instruments.
 - b. Contractor shall submit in writing to Commissioner a letter indicating the ohmic resistance of the service grounds and a statement that the grounding system is free of all defects, stray currents, shorts, etc.
 - c. Contractor to provide a three-point-fall-of-potential grounding test at the service to satisfy the requirements of Con Edison.
14. Computer Power Centers:
 - a. Each computer power center shall be factory tested and calibrated per specification prior to shipment. The following represents a minimum test procedure:
 - 1) Full load tested to rated value.
 - 2) Complete Hi-Pot test including out cables. This would be twice nominal voltage plus 1000 volts.
15. Three Phase Receptacles:
 - a. Rotometer test all three phase receptacles and verify correct phase rotation.

2.3 CALIBRATION

- A. Calibrate and adjust all components requiring same as directed, in accordance with manufacturer's procedures and recommendations or as required, for the following categories of equipment:
 1. Medium voltage switchgear.
 2. Unit substations.
 3. Transformer taps.
 4. Lighting fixtures (lamp positions, reflector positions, etc., as required).
 5. Motor Control Centers and motor starters.
 6. Generator Controls and synchronization.
- B. Provide overloads in all motor starters, in accordance with motor nameplate data and as recommended by the manufacturer.

PART 3 - EXECUTION

- 3.1 Notify the Commissioner seven (7) days prior to the testing dates. If the Commissioner so elect not to witness a specific test a statement of certification must be forwarded to the Commissioner for his approval.
- 3.2 Conduct tests at a time agreeable to the Commissioner. Provide premium labor as necessary.
- 3.3 Products which are found defective or do not pass such tests shall be removed and replaced at the Contractor's expense. Tests shall be repeated.
- 3.4 Arrange for and conduct all test and inspections required by the authorities having jurisdiction. All fees for testing and inspection shall be paid by the Contractor.

END OF SECTION 26 02 65

SECTION 26 02 80 – EQUIPMENT CONNECTIONS AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide final connections to equipment and coordinate same in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Equipment to receive final connections shall include but not be limited to the following:
 1. Motors and Equipment.

1.3 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 1. American National Standard Safety Code for Elevators Dumbwaiters and Moving Walks (ANSI A17.1).
 2. Food and Drug Administration.
 3. NFPA-96.

PART 2 - PRODUCTS

- 2.1 Only those products listed in Section 23 09 23 shall be employed.

PART 3 - EXECUTION

3.1 EXAMINATION OF DOCUMENTS

- A. Prior to the submitting of bids, this Contractor shall familiarize himself with all conditions affecting the proposed installation of equipment requiring electrical connections and shall make provisions as to the cost thereof. Failure to comply with the intent of this paragraph shall in no way relieve the Contractor of performing all necessary work required for final electrical connections and equipment and the coordination thereof.
- B. Connections shall be made in accordance with the manufacturers' recommendations and approved shop drawings.

3.2 ELEVATORS

- A. Connections for and coordination of elevators shall include but not be limited to the following:
 1. Dedicated power outlets (once circuit per car) and circuitry for car lights and fans. All such outlets are to be served by the emergency generator.
 2. Empty raceway from each controller to nearest telephone backboard for telephone communications.
 3. Lighting outlet, switch and duplex outlet within each elevator pit.
 4. Empty raceways from each elevator pit to Fire Command Center. Size and quantity of raceways as per elevator vendor's requirements.

5. Empty raceways from each elevator pit to each remote elevator status panel. Size and quantity of raceways as per elevator vendor's requirements.
6. Fused disconnect switches with feeders extended to and connected at each elevator controller. Fuse sizes shall be as per elevator vendor's requirements. All fuses shall be time delay type. Location of switches as required by local authority having jurisdiction.
7. Fire alarm speaker within each elevator cab and appropriate connections at the elevator machine room and Life Safety System.
8. Firefighter's telephone within each elevator cab and appropriate connections at the elevator machine room and Life Safety System.
9. Multiple signals from automatic transfer switch to each elevator machine room served by that transfer switch.

3.3 ESCALATORS

- A. Connections for and coordination of escalators shall include but not be limited to the following:
1. Disconnect switch with feeders extended to and connected at each escalator. Location of switch as required by local authority having jurisdiction.
 2. Lighting outlet, switch and duplex outlet within each escalator pit.
 3. Connection to demarcation lights at each escalator pit. Demarcation lights shall be on emergency circuit.

3.4 EQUIPMENT

- A. Connections for and coordination of motors and equipment requiring electrical connections shall include but not be limited to the following:
1. Install motor controllers and disconnect switch for each motor and each piece of equipment.
 2. Verify that the motor rotation is correct and reconnect if necessary.
 3. Provide separate ground wires in flexible, metal conduit and non-metallic conduit so as to provide an electrically continuous ground path. Ground all equipment.
 4. Provide motor branch circuit conductors and connections to each individual motor controller and from each controller to the motor through an approved disconnect switch. Make final connection in minimum 24 inch length of liquid-tight, flexible, metal conduit.
 5. Provide all necessary wiring and connections for interlocking, remote and automatic controls. Installation of equipment and wiring shall be in compliance with shop drawings and manufacturer's recommendations.
 6. Where equipment is fed from branch circuit routed in or under the slab, terminate branch circuit at J-box on 2 foot rigid conduit stub-up and make final connection to equipment in liquid-tight, flexible, metal conduit. Provide suitable knee brace on conduit stub-up.
 7. Where equipment is fed from overhead, support conduit feeder descending from ceiling on flanged floor fitting with conduit type fitting connecting to motor with 24-inch minimum of liquid-tight flexible steel conduit.
 8. Where nameplate on equipment indicates fuse protection the disconnecting means shall be equipped with time delay fuses.

3.5 APPLIANCES

A. Connections for and coordination of appliances shall include but not be limited to the following:

1. The basic requirements for motors and equipment specified above shall apply where applicable.
2. Where cord and plugs are provided with the appliances this contractor shall coordinate the receptacle installation to match. Information on the Drawing as to receptacle type is for bidding purposes only.
3. Direct connected equipment shall be serviced by disconnecting means.

END OF SECTION 26 02 80

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SECTION 26 02 90 – CEILING, FLOOR AND WALL ELECTRICAL PENETRATION FIRE SEALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide pre-mixed putty sealant at wall, ceiling and/or floor electrical penetration fire seals in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Wall, ceiling and/or floor electrical penetration fire seals.

1.3 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's product data for all fire seals.
 - 2. Submit proof of approval by local authorities.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. ASTM E119-73
 - 2. U.L. 1479

PART 2 - PRODUCTS

2.1 FIRE SEAL PUTTY SYSTEM

- A. System shall provide immediate fire seal, require no curing time, emit no hazardous or toxic fumes and be asbestos free and bear a New York city approval of fire stopping materials.
- B. Require no special tools and shall be capable of being installed from one side.
- C. No derating whatsoever required of wiring systems passing through seal.
- D. Field modified for additions or deletions of raceways or cables.
- E. Reusable materials to accommodate penetration changes.
- F. The installation of all required fire stopping shall be subject to the controlled inspection requirements of the New York City Building Code. Fire stopping shall not be concealed from view until inspected.

2.2 ACCEPTABLE MANUFACTURERS

- A. Nelson Electric
- B. Hilti

- C. 3M
- D. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Install putty no thinner than 0.75 inches.
- B. Place minimum of 0.5 inches of putty around each penetrating item. When not possible build up cone around penetrating items, using second layer of putty. Slope cone at 30 degrees from wall or floor.
- C. Wall openings not to have unsupported space of putty greater than 4 inches and floor openings an unsupported opening of 1.5 inches.
- D. Provide ceramic wool temperature rated 2300°F in conjunction with putty in accordance with manufacturer's instructions.
- E. Provide ceramic fiberboard temperature rated 2000°F in conjunction with putty in accordance with manufacturer's recommendation.
- F. Firmly anchor penetrating items prior to putty installation. Provide all necessary anchor bolts, fittings, etc. as necessary.

3.2 INSTALLATION

- A. Provide fire seals at all cable, conduit and bus duct penetrations through fire-rated walls, floors and ceilings, and where noted on Drawings. Coordinate with architectural and structural drawings for location of fire-rated walls.
- B. Install in accordance with manufacturer's directions and New York City Building Code to provide barrier rating equal to or greater than the barrier rating of wall.

END OF SECTION 26 02 90

SECTION 26 05 19 – 600 VOLT WIRE AND CABLE

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide 600 volt wire and cable in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Wire and Cable.
- B. Connectors.
- C. Electrical Tape.

1.3 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. General: Underwriters' Laboratories labeling of all insulations and jackets.
2. Rubber Insulated Wire and Cables:
3. ICEA Pub. No. S-19-81 (NEMA Pub. No. WC 3): Rubber-Insulated wire and Cable for the Transmission and Distribution of Electrical Energy.
4. U.L. 44: Rubber-Insulated Wires and Cables.
5. Thermoplastic Insulated Wire and Cables:
 - a. ICEA Pub. No. S-61-402 (NEMA Pub. No. WC 3): Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
 - b. U.L. 83: Wires, Thermoplastic-Insulated.
6. Cross-Linked Thermosetting-Polyethylene Insulated Wire and Cables:
 - a. ICEA Pub. No. S-66-524 (NEMA Pub. No. WC 7): Cross-Linked Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
 - b. U.L. 44: Rubber-Insulated Wires and Cables.
 - c. U.L. 854: Service-Entrance Cable.
7. Annealed Copper Wire for Conductors:
 - a. ASTM B-3: Soft or Annealed Copper Wire.
8. Terminal Blocks:
 - a. U.L. 1059.
9. Insulation Thicknesses for Individual Conductors:
 - a. NEC Table 310-13: Conductor Application and Insulations.

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

A. General

1. Provide wire with minimum insulating rating of 600 volts, except for wire used in 50 volts or below applications. For control or signal systems use 300 volt minimum or 600 volt where permitted to be incorporated with other wiring systems.

B. Conductors

1. Electrical grade, annealed copper, tinned if rubber insulated, and fabricated in accordance with ASTM standards.

C. Stranding and Number of Conductors

1. Number 12 and number 10 solid.
2. Cables larger than number 10, stranded in accordance with ASTM Class B stranding designations.

D. Insulated Single Conductors

1. Type THW or THWN - Thermoplastic insulation suitable for use in wet locations up to 75°C.
2. Type THHN - Flame Retardant: Heat-resistant thermoplastic insulation, nylon jacket rated for 90°C operation.

E. Acceptable Manufacturers

1. Products by any manufacturer meeting the performance requirements specified herein may be utilized, or approved equal.

2.2 CONNECTORS

A. Wire Number 10 AWG and Smaller

1. Hand-Applied:

- a. Coiled tapered, spring wound devices with a conducting corrosion-resistant coating over the spring steel and a plastic cover and skirt providing full insulation for splice and wired ends. Screw connector on by hand.

2. Tool-Applied:

- a. Steel cap, with conduction and corrosion resistant metallic plating, open at both ends, fitted around the twisted ends of the wire and compressed or crimped by means of a special die designed for the purpose. Specifically fitted plastic or rubber insulating cover wrap over each connector.
- b. Hydraulic tool of same manufacturer as lug which shall emboss on the connector the proper die number for inspection.
- c. Anti-oxide inhibitor for aluminum terminations.

B. Acceptable Manufacturers

1. Hand-Applied:

- a. T&B "Piggy"
- b. 3M Company "Scotchlok"
- c. Ideal Industries "Wing Nut"
- d. Buchanan "Squeeze On"
- e. Or Approved Equal

2. Tool-Applied:

- a. T&B "Stakon" or Series "54475" through "54490"
- b. Ideal Industries "410 Crimp Connector"
- c. Burndy "KA-U" or "YA"
- d. ILSCO "TA", "AU" or "D"
- e. Buchanan "Wrap-Cap"
- f. Or Approved Equal

3. Anti-Oxide Inhibitor:

- a. "Penetrox" (Burndy)
- b. "Noalox" (Ideal)
- c. Or Approved Equal

2.3 ELECTRICAL TAPE

A. Specifically designed for use as insulating tape.

B. Acceptable Manufacturers

1. W.H. Brady "B-500", "B-500"
2. T&B "E-Z" Code Type WBC
3. 3M "Scotch 35" vinyl plastic, electrical
4. Johns-Manville
5. Or Approved Equal

PART 3 - EXECUTION

3.1 WIRE AND CABLE

- A. Provide a complete system of conductors in raceway system. Mount wiring through a specified raceway, regardless of voltage application.
- B. Drawings do not indicate size of branch circuit wiring; use No. 12 AWG minimum. For 15 or 20 ampere branch circuits whose length from panel to furthest outlet exceeds 100 feet for 120-volt circuits or 200 feet for 265-volt circuits, use number 10 or larger. Extend wire sizing for the entire length of a circuit, feeder, etc. unless specifically noted otherwise. Use No. 14 AWG minimum for control wiring.
- C. Provide dedicated neutral conductor and equipment ground conductor for each branch circuit serving television broadcast equipment, audio visual equipment and sound system equipment. If isolated grounds are shown as required, they shall also be dedicated.

- D. Provide dedicated neutral for each dimmer branch circuit and for each ground fault interrupter branch circuits.
- E. Provide shared neutral conductor, one standard wire size greater than branch circuit phase conductor for all branch circuits to receptacle loads in offices, courtrooms, and the like.
- F. Conductor Types
 - 1. Type THW or THWN - Use for lighting, receptacle and motor circuits and for panel and equipment feeders.
 - 2. Type THHN - Use for lighting branch circuit wiring installed and passing through the ballast channels of fluorescent fixtures, wiring in metal roof decks in or near roof insulation, in attic or joist spaces, or in raceways exposed to the sun.
- G. Do not install wire in incomplete conduit runs nor until after concrete work and plastering is completed and moisture is swabbed from conduits. Eliminate splices wherever possible. Where necessary, splice in readily accessible pull, junction, or outlet box.
- H. Provide cable supports for all vertical risers where required by code not to exceed the following:

Minimum Conductor Size	
	Copper
No. 12 AWG to No. 8 AWG	100 ft.
No. 6 AWG to No. 0 AWG	100 ft.
No. 00 AWG to No. 0000 AWG	80 ft.
211,601 CM to 350,000 CM	60 ft.
350,001 CM to 500,000 CM	50 ft.
500,001 CM to 750,000 CM	40 ft.

- I. Flashover or insulation value of joints to be equal to that of the conductor. Use Underwriters' Laboratories listed connectors rated at 600 volts for general use and 1,000 volts for use between ballasts and lamps of gaseous discharge lighting fixtures.
- J. Use terminating fittings, connectors, etc., of a type suitable for the specified cable furnished. Make bends in cable at termination prior to installing compression device. Make fittings tight.
- K. Install wire in raceways and make up terminations in accordance with manufacturer's recommendations using special washers, nuts, etc., as required. Use appropriate wire-pulling lubricant for all wire No. 4 AWG and larger. Strip insulation so as to avoid nicking of wire.

L. Color Coding

1. Provide consistent color coding of all feeders, sub-feeders, motor circuits and the likes as follows:

120/208 Volts Code
Phase A - Black
Phase B - Red
Phase C - Blue
Neutral - White
Ground - Green
Isolated Ground - Green/Yellow Striped

265/460 Volt Code
Phase A - Brown
Phase B - Orange
Phase C - Yellow
Neutral - Gray
Ground - Green
Isolated Ground - Green/Yellow Striped

2. Factory color code wire number 2 AWG and smaller. Where color coding cannot be readily provided because of limited quantities involved, provide either of the following:
 - a. Plastic tape applied spirally and half-lapped over exposed portions of conductors within manholes, boxes, and similar enclosures.
 - b. Colored tubing cut and inserted over ends of wire prior to installing terminals.
3. Wire number 1 AWG and larger may be color coded by color taping of the entire length of the exposed ends.
4. Color code wiring for control systems installed in conjunction with mechanical and/or miscellaneous equipment in accordance with the wiring diagrams furnished with the equipment.

3.2 INSTALLATION

A. General

1. Provide tools, equipment and materials to pull all wire and cable into place and to make required splices and termination.

B. Wire and Cable in Conduit, Duct or Wireway

1. Utilize roller bearing swivel to prevent twisting of cable entering conduit or duct.
2. Take precautions to avoid entrance of dirt and water into conduit and ducts.
3. Clean existing conduits and ducts to remove any pulling compound prior to pulling new cables.
4. Do not damage conductor insulation, braid jacket or sheath.
5. Do not bend conductors to less than manufacturer's recommended radius.
6. Lubricate cable if required for pulling.
7. Make splices only in pull boxes, junction boxes and outlet boxes.
8. Utilize cable reels on jacks for pulling through pull boxes, ducts and conduits so bends will not be excessive and conductors will not touch sharp edges; use feeding tube where required.
9. For large diameter cables, utilize properly sized pulling grips (endless woven basket two to four feet long of ductile steel).
10. Do not exceed maximum recommended pulling tension of wire and cable.

C. Splices, Terminations and Connections

1. General: Except where lugs are furnished with equipment, provide terminals and connectors suitable for quantity, conductor size and direction of entry (top or bottom).
2. Insulated Flanged Terminals: Install for connection of conductors No. 12 AWG and smaller to device terminals; do not exceed three terminals at single connections.
3. Circumferential Compression Type Connectors (Install for Splices and Connections No. 4 AWG and Larger):
 - a. Use for incoming and outgoing cable connections at enclosures and for ground connections.
 - b. Use manufacturer's approved tool and correct size hex head which embosses die number on connector or lug.
 - c. Make crimped indentations parallel with insulation putty.
 - d. Fill voids and irregularities with insulation putty.
 - e. Cover neatly with four (4) layers of vinyl plastic tape except where insulated covers are permitted; half-lap tape in two directions.
 - f. Use spring-held bakelite covers over splices or taps only with approval of Commissioner.
4. Splicing in Manholes and Handholes: Install proper splicing kits by manufacturer's instructions.

D. Wire Marker Identification Labels

1. Utilize labels for those circuits where individual conductor identity is indicated on Drawings.
2. Apply to wires and cables at terminals and in all pull, junction and splice boxes.
3. Do not cut and splice multi-conductor control cable for purpose of labeling.
4. Clean surfaces before applying labels.
5. Tag and tape all spare wiring.

3.3 FIELD TESTING

- A. Test system wiring for continuity, grounds and short circuits prior to connection of any equipment.
- B. Test final equipment connections for continuity of grounds and short circuits.

C. Insulation Resistance of Feeders and Subfeeders

1. Test with megger for insulation resistance. Insulation resistance to comply with ICEA values.
2. Correct faults and sections with faulty insulation.

END OF SECTION 26 05 19

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BRONX COUNTY HALL OF JUSTICE REMEDIATION
DDC ID# CO290BCHJ-2
600 VOLT WIRE AND CABLE - 26 05 19 - 8

SECTION 26 05 26 – GROUNDING SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide a low impedance grounding system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Ground Connectors and Clamps; Grounding, Bushings and Locknuts.
- B. Welding Type Ground Connectors.
- C. Compression Type Grid Connectors.
- D. Ground Rods and Clamps.
- E. Bonding Jumpers for Hinged Joints in Cable Trays.
- F. Electrical Insulating Tape.
- G. Compound for Compression Connectors.

1.3 SUBMITTALS

A. Shop Drawings

- 1. Provide a complete set of shop drawings showing service grounding methods as called for on the Contract Documents.

B. Test Reports

- 1. Submit test reports certifying resistance values for buried or driven grounds and water pipe grounds.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

- 1. Underwriters Laboratory Standard No. U.L. 467.
- 2. ANSI C-1 1978.
- 3. IEEE Standard No. 142-1982.
- 4. New York City Electrical Code (NYCEC).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Ground Cables: Bare or green color coded, insulated, annealed stranded tinned copper wire as indicated on Drawings; insulated wire to conform with requirements of another section herein.
- B. Mechanical Connectors: Tin-plated aluminum alloy, U.L. approved and stamped for use with aluminum or copper conductors.
- C. Ground Rods
 - 1. Copper-clad steel fabricated by molten welding process.
 - 2. Diameter: 3/4 inch.
 - 3. Length: 10 feet.
- D. Ground Lugs and Connectors for Cable Tray: Tin-plated aluminum alloy, suitable for use with aluminum or copper conductors.

2.2 ACCEPTABLE MANUFACTURERS

- A. Ground Connectors and Clamps; Grounding Bushings and Locknuts
 - 1. All Steel Equipment, Inc.
 - 2. Appleton Electric Company
 - 3. Electrical Fittings Corp. (EFCOR)
 - 4. Gedney Electric Company
 - 5. IlSCO - Division of Bardes Corp.
 - 6. Midwest Electric Manufacturing Company
 - 7. Steel City Division, Midland Ross Corp.
 - 8. Thomas & Betts Company
 - 9. O-Z/Gedney Co.
 - 10. Or Approved Equal
- B. Welding Type Ground Connectors
 - 1. Burndy Engineering Company (Thermoweld)
 - 2. Erico Products, Inc. (Cadweld)
 - 3. Harger
 - 4. Or Approved Equal
- C. Compression Type Grid Connectors
 - 1. Thomas & Betts Company - Series 53000
 - 2. Burndy Engineering Company
 - 3. PENN-UNION
 - 4. Or Approved Equal
- D. Ground Rods and Clamps
 - 1. Copperweld Steel Company
 - 2. ITT Blackburn Corp.
 - 3. J. A. Weaver Company
 - 4. Or Approved Equal
- E. Bonding Jumpers for Hinged Joints in Cable Tray

1. Husky/Burndy Cat. No. AF5-C
 2. Cooper B-Line
 3. Legrand
 4. Or approved equal
- F. Electrical Insulating Tapes
1. Self-Fusing: 3M Company No. 23.
 2. Vinyl: 3M Company No. 33+.
 3. Grainger
 4. Or Approved Equal
- G. Compound for Compression Connectors
1. Thomas & Betts Company - Kopr/Shield.
 2. Burndy Engineering Company
 3. Garvin Industries
 4. Or Approved Equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Purpose of Grounding System
1. Adequate path for ground fault currents.
 2. Safety to personnel from accidental electric shock hazards.
 3. Prevention of hazardous discharge of static electricity.
- B. Whether or not indicated on Drawings, provide continuous ground path for all electrical circuits from point of utilization back to source through ground wires, bonded metallic conduit runs, grounded cable trays, and related items.
- C. Electrical Equipment: Provide complete exterior and interior grounding system, including grounding provisions for switchgear and transformers, motor control centers, cable trays, motors, emergency generators and other equipment as indicated on Drawings or required by applicable standards.
- D. Miscellaneous Equipment: Provide complete grounding for chimneys, smokestacks, flag poles, metal lighting standards, metal antennas, steel framework of buildings, elevators, and other equipment as indicated on Drawings or required by applicable standards.
- E. Furnish and install electrical grounding systems as indicated on the construction documents and as specified herein.
- F. Grounding systems shall be installed in accordance with the requirements of the NYCEC, Article 8 and subject to the approval of the Commissioner.
- G. All ground wires and bonding jumpers shall be stranded copper installed in conduit. All ground wires shall be without joints and splices over its entire length.

- H. The system neutral shall be grounded at the service entrance only, and kept isolated from grounding systems throughout the building.
- I. Each system of continuous metallic piping and ductwork shall be grounded in accordance with the requirements of the and NYCEC Article 8.
- J. Mechanical equipment shall be bonded to the building equipment grounding system. This shall include but is not limited to, fans, pumps, chillers, etc.
- K. PVC conduits and portions of metallic piping and duct systems which are isolated by flexible connections, insulated couplings, etc., shall be bonded to the equipment ground with a flexible bonding jumper, or separate grounding conductor.
- L. Metal raceways, cable trays, cable armor, cable sheath, enclosures, frames, fittings and other metal noncurrent-carrying parts that are to serve as grounding conductors shall be effectively bonded where necessary to assure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them. Any nonconductive paint, enamel, or similar coating shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings so designed as to make such removal unnecessary.

3.2 SERVICE GROUNDING SYSTEM

- A. Provide a bare copper bus mounted within the electrical switchboard room. Bus shall be 6" H x 1" W x 2' L.
- B. Extend two (2) service grounding connectors in separate raceways from ground bus to ground bus in each switchboard.
- C. Extend conductors in raceway from service ground bus as indicated on the Drawings.
- D. Extend conductors in raceway from grounding bus to the cold water main.

3.3 SWITCHBOARD AND PRIMARY SWITCHGEAR

- A. Bond each section of switchboards and primary switchgear housing and service conduits entering same to ground bus.

3.4 SEPARATELY DERIVED SYSTEMS

- A. Equipment grounding conductors shall be provided for separately derived systems and shall be grounded to building steel, cold water pipes, etc., or an alternate grounding means. Equipment grounding shall consist of but not to be limited to the following:
 - 1. Lighting transformer.
 - 2. Power transformer.
 - 3. Electric generator sets.

3.5 RECEPTACLES

- A. Receptacles shall be grounded to the outlet box by means of a bonding jumper between the outlet box and the receptacle grounding terminal.

3.6 ISOLATED GROUND RECEPTACLES

- A. Isolated ground receptacles shall not be connected to the respective outlet boxes.

- B. Provide insulated ground wire for each isolated ground receptacle circuit. Ground wire shall serve only those receptacles which are isolated. Route ground conductor together with phase and neutral conductors in a common raceway. Provide a dedicated ground wire for each receptacle circuit.
- C. Terminate isolated ground wire at the ground from the separately derived system serving the receptacles. Where not supplied by a transformer, run the isolated ground wire to the service ground bus.

3.7 CONCENTRIC KNOCKOUTS

- A. Provide grounding type bushings for conduits terminated through multiple concentric knockouts not fully knocked out, on inside of panelboards. Ground bushing with #12 bar copper to panelboard ground bus.

3.8 BUS DUCTS

- A. Where bus ducts route to switchboard the ground bus in the bus ducts shall be extended to the ground bus on the switchboards.
- B. Where bus ducts are served via cable tap boxes, extend ground conductors from ground bus in bus duct to ground bus of switchboard.
- C. All bus duct take off switch and fuse devices shall have ground pin within them for positive connection to ground bus.

3.9 TOGGLE SWITCHES

- A. Provide grounding clip on each toggle switch. Mount over device mounting strap such that contact is made between mounting strap, k screw, faceplate and outlet box.
- B. Provide devices with ground screw where required by local authorities and bond this with #10 conductor to associated outlet box.

3.10 GROUNDING METHODS

- A. Ground rods shall be copper-clad steel not less than 3/4 inch in diameter, ten (10) feet long, driven full length into the earth. The maximum resistance shall not exceed 5 ohms. If this resistance cannot be obtained with a single rod, additional rods shall be installed not less than six (6) feet on center. If sectional type rods are used, two additional sections may be coupled and driven with the first rod.
- B. Uffer grounding system shall consist of a bare copper cable minimum forty (40) feet in length placed in the concrete foundation at not more than three inch or less than one inch from bottom, where concrete is in direct contact with the earth.
- C. The metal frame of the building, where effectively grounded.
- D. A metal underground water piping system used for grounding shall be in direct contact with the earth for ten feet or more and shall be electrically continuous. Provide bonding jumpers at water meter and at insulating joints.
- E. Steel reinforcing bars used for grounding shall be encased by at least two inches of concrete, located within and near the bottom of a concrete foundation or footing that is in direct contact

with the earth. Reinforcing bars shall be minimum ½ inch diameter and consisting of twenty feet of one or more steel reinforcing bars.

- F. All bonding jumpers for the above grounding systems shall be sized in accordance with NYCEC Article 8.

3.11 INSTALLATION

A. Grounding Grid

1. Install grounding grids with ground rods and cables as indicated on Drawings.
2. Avoid splices in ground cables.
3. Connectors:
 - a. Install mechanical connectors in above ground accessible locations only.
 - b. Install welding type ground connections or connection type grid grounding connectors underground, in manholes, or at inaccessible locations only.
 - c. Thoroughly clean contact surfaces before making connections.
 - d. Apply manufacturer's compound for compression connectors to conductors prior to crimping.
 - e. Made connections using compression type grid grounding connectors with approved manufacturer's hydraulic tool and correct size hex head die which, for inspection, embosses proper die number on connector.
4. Make connection from ground grid to equipment ground buses as shown on Drawings.
5. Provide for future disconnection for testing where building ground loop or grid connects to exterior or interior steel.
6. Wrap conductors with self-fusing electrical tape and cover with vinyl electrical tape where insulation of grounding system connections is required.

B. Cold Water Pipe Grounding

1. Make connection with clamp type fitting; do not damage water pipe.
2. Bond ground conductor and its conduit to water pipe.
3. Install No. 4/0 AWG bonding jumper with ground clamps around water meter.

C. Ground Conductors

1. Size as shown on Drawings or as required by NYCEC Article 8.
2. Where ground cables are required, install insulated copper ground conductors in steel conduit or as indicated.
3. Where ground cable is protected by metallic conduit, bond cable to conduit at both ends.
4. Connect ground conductors in cables and in conduit to appropriate ground buses (as in switchboards, and distribution panelboards) or directly to metallic enclosure if no ground bus is provided.

D. Conduit Attachment to Electrical Equipment

1. Ground conduits to metal framework of electrical equipment with double locknuts or grounding bushings and bonding jumpers unless otherwise noted.
2. Install bonding jumpers at all electrical equipment to provide continuous ground return path through conduit.
3. Install NYCEC approved bonding jumpers across expansion fittings between conduit sections for ground path continuity.

4. Where motors or other utilization equipment are connected to electrical system with flexible conduit, ground by one of the following:
 - a. Flexible metal conduit alone if length is 6 feet or less, conduit is terminated in fitting approved for purpose, and circuit conductors contained therein are protected by overcurrent devices rated at 20 amperes or less.
 - b. External jumper across flexible conduit.
 - c. Flexible conduit containing integral ground wire.
 - d. Do not install external jumpers for flexible conduit connections to kitchen equipment.

E. Cable Trays and Wiring Troughs

1. Use metallic raceway system for principal ground return path.
2. Bond together wiring troughs containing power circuits and tie to ground bus at switchboards, panelboards; install minimum No. 4/0 AWG copper conductors for bonding between cable system and switchboards ground buses.
3. Install minimum No. 2 AWG insulated copper conductors for bonding between cable support system and conduit dropouts, service equipment or cabinets.
4. Apply antioxidant compound to contact surfaces for all bonding connections to cable tray.
5. Install bonding jumpers across hinged joints.

F. Receptacles and Switches

1. Install bonding jumpers between outlet box and receptacle grounding terminal except where contact device or yoke is provided for grounding purposes.

G. Wireways

1. Install grounding jumpers for bonding between wireway and other panelboards, conduit, switchboard, and at any other point where solid connection would otherwise not be provided in supporting system to insure continuous ground.

H. Panelboards

1. Install bonding jumpers inside all panelboards to bond feeder conduit to panelboards, except ground panelboards containing branch circuits each having less than 150 amperes current carrying capacity, with two standard locknuts and bushings, one inside and one outside, run up wrench tight.

I. Dry-Type Transformers

1. Perform grounding in accordance with NYCEC Article 8.
2. Install bonding jumper across flexible conduit from transformer housing to rigid conduit.

J. Sheet Metal Boxes

1. Install bonding jumpers inside all sheet metal boxes containing one or more feeders with current carrying capacity of 150 amperes or greater, to bond one conduit with another.
2. Ground boxes containing branch circuits only or feeders each less than 150 amperes current carrying capacity, with two standard locknuts and bushings, one inside and one outside, run up wrench tight. two standard locknuts and bushings, one inside and one outside, run up wrench tight.
3. Panelboards: Install bonding in sheet metal boxes in systems over 600 volts, regardless of current carrying capacity.

K. Floor Boxes

1. Install grounding jumpers where adequate ground connections are not provided through locking screws between high potential power service fittings, cover plates, and conduit system.

3.12 FIELD QUALITY CONTROL

- A. Measure resistance values for system and equipment grounds, for each ground rod and ground grid.
- B. Acceptable Testing Equipment: Vibroground by Associated Research, Inc.; or Megger Earth Tester by James G. Biddle Co.
- C. Method: Three (3) electrode fall of potential as prescribed by instrument manufacturer.
- D. Drive additional ten-foot ground rods spaced eight feet apart, if necessary, until total resistance of system is measured at five ohms or less.

END OF SECTION 26 05 26

SECTION 26 05 33 – RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide raceway systems and boxes in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Rigid Steel Conduit.
- B. Rigid Aluminum Conduit.
- C. Electrical Metallic Tubing.
- D. Flexible Steel Conduit.
- E. Liquid-Tight Flexible Conduit.
- F. Non-Metallic Conduit.
- G. Conduit Fittings.
- H. Wireways and Auxiliary Gutters.
- I. Outlet, Junction and Pull Boxes.
- J. Identification Labels.

1.3 SUBMITTALS

A. Shop Drawings

- 1. Full erection drawings where wireways and/or auxiliary gutters are employed. Drawings to include plan views, elevations, size of wireways, type and quantity of conductors proposed to be installed therein, etc.
- 2. Indicate duct banks on multi-trade coordinated shop drawings.

B. Product Data

- 1. Submit dimensioned drawings for boxes exceeding 24 inches for any one dimension.
Submit manufacturer's catalog data for floor boxes and accessories.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. Rigid Steel Conduit:
 - a. U.L. Standard UL-6.
 - b. ANSI C80-1.
 - c. Federal Specification WW-C-581E.

2. Rigid Aluminum Conduit:
 - a. ANSI C80-5.
3. Electrical Metallic Tubing:
 - a. U.L. Standard UL-797.
 - b. ANSI C80-3.
 - c. Federal Specification WW-C-563.
4. Flexible Steel Conduit:
 - a. U.L. Standard UL-1.
5. Liquid-Tight Flexible Conduit:
 - a. U.L. Standard UL-360.
6. Non-Metallic Conduit:
 - a. U.L. Standard UL-651.
 - b. ANSI Standard F512.
 - c. NEMA Standard TC-2.
 - d. Federal Specifications GSA-FSS and W-C-1094-A.
 - e. Corps of Engineers Specification CE-303:01.
7. Wireways and Auxiliary Gutters:
 - a. U.L. Standard UL-870.

PART 2 - PRODUCTS

2.1 RIGID STEEL CONDUIT

- A. Rigid conduit, heavy wall, galvanized.
- B. Acceptable Manufacturers
 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - a. Republic Conduit
 - b. Allied Tube & Conduit
 - c. Wheatland Tube
 - d. Or approved equal.

2.2 RIGID ALUMINUM CONDUIT

- A. Rigid conduit, heavy wall.
- B. Acceptable Manufacturers
 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.

- a. Republic Conduit
- b. Allied Tube & Conduit
- c. Wheatland Tube
- d. Or approved equal.

2.3 ELECTRICAL METALLIC TUBING

- A. Continuous, seamless tubing galvanized or sheradized on exterior, coated on interior with smooth hard finish of lacquer, varnish or enamel.
- B. Acceptable Manufacturers
 - 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - a. Republic Conduit
 - b. Western Tube
 - c. Wheatland Tube
 - d. Or approved equal.

2.4 FLEXIBLE STEEL CONDUIT

- A. Single strip, continuous, flexible interlocked double-wrapped steel, galvanized inside and outside forming smooth internal wiring channel.
- B. Acceptable Manufacturers
 - 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - a. Southwire
 - b. AFC
 - c. Delikon
 - d. Or approved equal.

2.5 LIQUID-TIGHT FLEXIBLE CONDUIT

- A. Same as flexible steel conduit except with tough, inert watertight plastic outer jacket.
- B. Acceptable Manufacturers
 - 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - a. Southwire
 - b. AFC
 - c. Delikon
 - d. Or approved equal.

2.6 NON-METALLIC CONDUIT

- A. Composed of polyvinyl chloride suitable for 90°C.
- B. Raceway, fittings and cement must be produced by same manufacturer who must have had minimum of three (3) years' experience in manufacturing the products.

- C. Materials must have tensile strength of 7,000-7,200 psi at 73.4°F, flexural strength of 12,000 psi and compressive strength of 9,000 psi.
- D. Acceptable Manufacturers
 - 1. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - a. Allied Tube
 - b. Carlon
 - c. Wheatland Tube
 - d. Or approved equal.

2.7 CONDUIT FITTINGS

- A. Rigid Steel Conduit
 - 1. Threaded type fittings. "Erickson" couplings where threaded cannot be used.
- B. Rigid Aluminum Conduit
 - 1. Threaded type fittings. "Erickson" couplings where threaded cannot be used.
- C. Electrical Metallic Tubing
 - 1. 2½-inch in size and larger may be set screw type. 2-inch in size and smaller, steel compression gland.
 - 2. In slab or concrete work, concrete-tight fittings.
- D. Flexible Steel Conduit
 - 1. Compression-type fittings.
- E. Liquid-Tight Flexible Conduit
 - 1. Cast malleable iron body and gland nut, cadmium plated with one-piece brass grounding bushings which thread to interior of conduit. Spiral molded vinyl sealing ring between gland nut and bushing and nylon insulated throat.
- F. Non-Metallic Conduit
 - 1. Solvent cemented type.

2.8 WIREWAYS AND AUXILIARY GUTTERS

- A. Of sizes and shapes indicated on Drawings and as required.
- B. Provide all necessary elbows, tees, connectors, adaptors, etc.
- C. Hinged cover secured with captive screws.
- D. Wire retainers not less than 12 inches on center.
- E. Acceptable Manufacturers
 - 1. Square D

2. Wiremold Company

2.9 OUTLET, JUNCTION AND PULL BOXES

A. Cast Type Conduit Boxes, Outlet Bodies, and Fittings

1. For rigid steel conduit and IMC, ferrous alloy box with inside threaded hubs.
2. For rigid aluminum conduit, aluminum box with inside threaded hubs.
3. For electrical metallic tubing, ferrous alloy box with compression or inside threaded hubs with adapter.
4. Covers: Cast or sheet metal unless otherwise required.
5. Tapered threads for hubs.
6. Acceptable Manufacturers:
 - a. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - 1) Copper Industries
 - 2) Hubble
 - 3) Thomas & Betts/Steel City
 - 4) Or approved equal.

B. Galvanized Pressed Steel Outlet Boxes

1. General: Pressed steel, galvanized or cadmium-plated, minimum of 4 inches octagonal or square with galvanized cover or extension ring as required.
2. Concrete Box: 4" octagon with removable backplate and 3/8" fixture stud, if required. Depth of box shall allow for minimum of 1" of concrete to be poured above the backplate.
3. Switch and Receptacle Box, Indoors: Nominal 4" square, 1 1/2" or 2-1/8" deep as required, with raised cover unless otherwise indicated on Drawings.
4. Lighting Fixture Box:
 - a. 4" octagon with 3/8" fixture stud.
 - b. For suspended ceiling work, 4" octagon with removable backplate where required, and two parallel bars for securing to cross-furring channels and extend flexible conduit to each fixture.
5. Acceptable Manufacturers:
 - a. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - 1) Copper Industries
 - 2) Hubble
 - 3) Thomas & Betts/Steel City
 - 4) Or approved equal.

C. Sheet Steel Boxes Indoors:

1. No. 12 USS gauge sheet steel for boxes with maximum side less than 40 inches, and maximum area not exceeding 1,000 square inches; riveted or welded 3/4 inch flanges at exterior corners.
2. No. 10 USS gauge sheet steel for boxes with maximum side 40 to 60 inches, and maximum area 1,000 to 1,500 square inches; riveted or welded 3/4 inch flanges at exterior corners.

3. No. 10 USS gauge sheet steel riveted or welded to 1½" by 1½" by ¼" welded angle iron framework for boxes with maximum side exceeding 60 inches and more than 1,500 square inches in area.
4. Covers:
 - a. Same gauge steel as box.
 - b. Subdivided single covers so no section of cover exceeds 50 pounds.
 - c. Machine bolts, machine screws threaded into tapped holes or sheet metal screws as required; maximum spacing 12 inches.
5. Paint: Rust inhibiting primer; ANSI No. 61 light gray finish coat.
6. Acceptable Manufacturers:
 - a. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - 1) Copper Industries
 - 2) Hubble
 - 3) Thomas & Betts/Steel City
 - 4) Or approved equal.

D. Pull and Splice Boxes, Outdoors:

1. Aluminum reinforced, with removable covers secured by brass machine screws.
2. Acceptable Manufacturers:
 - a. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - 1) Copper Industries
 - 2) Hubble
 - 3) Thomas & Betts/Steel City
 - 4) Or approved equal.

E. Junction Box, Sidewalk Type

1. Cast iron, hot-dipped galvanized with threaded conduit entrance hubs, flanged, reinforced checkered cover, gasketed with pry bar slots and countersunk stainless steel screws.
2. Acceptable Manufacturers:
 - a. U.L. listed and labeled products by any manufacturer meeting the performance requirements specified herein may be utilized.
 - 1) Copper Industries
 - 2) Hubble
 - 3) Thomas & Betts/Steel City
 - 4) Or approved equal.

F. Floor Boxes

1. General:
 - a. Class I, watertight, normal depth cast iron construction Type I, fully adjustable, for use in concrete.
 - b. Single Gang: Round type.

- c. Multiple Gang or Combination: Rectangular type: partitions for separating power from communication sections.
2. Floor Box Covers:
- a. Rugged construction, impervious to cleaning detergents.
 - b. Compatible with floor covering.
 - c. Brass or bronze for flush mounting.
 - d. Providing continuous ground path to box.
3. Acceptable Manufacturers:
- a. Single Gang for 15 or 20 Ampere Duplex Receptacles: Round with four (4) 3/4 inch hubs and single flush cover.
 - 1) Hubbell B-2536 floor box, S-3082 carpet flange, S-3925 cover with flip-up disc.
 - 2) Steel City 602 floor box, PC-60-CP carpet flange, P-60-DH cover with flip-up disc.
 - 3) Thomas & Betts 1967 floor box (1" hubs), 1980 carpet flange, 202 cover with flip-up disc.
 - 4) Or Approved Equal
 - b. Single Gang for Communication Circuits: Round with four (4) 3/4 inch hubs and single flush cover.
 - 1) Hubbell B-2536 floor box, S-3082 carpet flange, S-25 cover with combination 2-3/4" plug, S-3124 3/4" bushed standpipe.
 - 2) Steel City 602 floor box, PC-60-CP carpet flange, P-60-3/4-2 cover with combination 2-3/4" plug, 419 bushed standpipe.
 - 3) Thomas & Betts 1967 floor box (1" hubs), 1980 carpet flange, 204 cover with 2-3/4" plug, 1747 3/4" bushed standpipe.
 - 4) Or Approved Equal
 - c. Single Gang for Telephone Service: Round with four (4) 1 1/4" hubs and single flush cover.
 - 1) Hubbell B-4233 floor box, S-3082 carpet flange, S-2925 cover with 2" plug, S-3086 split nozzle.
 - 2) Steel City 601-1-1/4 floor box, PC-60-CP carpet flange, P-60-2 cover with 2" plug, 700 split nozzle.
 - 3) Thomas & Betts 1968 floor box (1" hubs), 1980 carpet flange, 204 cover with 2" plug, 1725 split nozzle.
 - 4) Or Approved Equal
 - d. Multi-gang with Interior Partitions and 3/4 Inch Hubs:
 - 1) Hubbell B-4233 two gang box, S-3084 carpet plate (if required), B-4333 three gang box, S-3085 carpet plate (if required).
 - 2) Steel City 642 two gang box, PC-64-2G-CP carpet plate (if required), 643 three gang box, P-64-3G-CP carpet plate (if required).
 - 3) An equal product manufactured by Thomas & Betts.
 - 4) Or Approved Equal
 - e. Single Gang Rectangular Covers for Multi-Gang Boxes:

- 1) Hubbell S-3825 (flip up) single gang cover, S-2825 single gang cover with 2" plug, S-2425 single gang cover with combination 2" - 3/4" plug.
- 2) Steel City P-64-SU (flip up) single gang cover, P-64-2 single gang cover with 2" plug, P-64-3/4-2 single gang cover with combination 2" - 3/4" plug.
- 3) An equal product manufactured by Thomas & Betts.
- 4) Or Approved Equal

2.10 IDENTIFICATION LABELS

A. Plasticized Cloth

1. Non-conductive.
2. Waterproof.
3. Capable of withstanding continuous temperatures of 235°F and intermittent temperatures to 300°F.
4. Overcoating for protection against oil, solvents, chemicals, moisture, abrasion and dirt.

B. Heavy, thermo-resistant industrial grade adhesive for adhesion of label to any surface without curling, peeling, or falling off.

C. Legends: Sharp, bold-face, two inch black letters on "Alert" orange background.

D. Label Designations, Nominal System Voltages

208 volts
240 volts
60 volts

E. Acceptable Manufacturers

1. W.H. Brady Company (Style A)
2. Thomas & Betts Corporation (Style A)
3. Steel City
4. Or Approved Equal

PART 3 - EXECUTION

3.1 APPLICATION OF RACEWAYS

A. The following applications must be adhered to except as otherwise required by Code. Raceways not conforming to this listing must be removed and replaced with specified material at no additional expense.

Raceway Types	Application
Rigid Steel Conduit	For all 120, 208, 277 and 480 volt feeders, circuits, etc., where exposed to mechanical injury, where specifically required, all 120, 208, 277 and 480 volt conduits within parking garage areas, all exterior conduits, conduits installed within floor slabs, conduits in mechanical equipment rooms located below 8'-0", indoors where exposed to moisture, Con Edison electric service raceways, fire pump service raceways, where required by codes and for all circuits in excess of 600 volts.

Raceway Types	Application
Aluminum Conduit	Outdoor locations.
E.M.T.	Use in every instance except where another material is not specified. EMT conduit is acceptable for low voltage conduits (i.e., telecommunications/data raceways) subject to mechanical injury including parking garage.
Flexible Steel	Use in dry areas for connections to lighting fixtures in hung ceilings, connections to equipment installed in removable panels of hung ceilings, at bus duct takeoffs, at all transformer or equipment raceway connections where sound and vibration isolation is required.
Liquid-Tight Flexible Conduit	Use in areas subject to moisture where flexible steel is unacceptable, at connections to all pumps and motors.
Non-Metallic Conduit	Schedule 40 – For underground raceways outside of building which are encased in concrete. Schedule 80 – For underground raceways installed below concrete slab of B2 level within gravel. Conduits to be concrete encased with minimum 4" concrete cover. Provide a rigid galvanized steel section from the switchgear or riser entering slab up to and including the first 90° degree bend of ductwork and within 5'-0" of every manhole. Also for underground raceways outside of Building which are not encased in concrete, and for all site lighting circuiting.
Wireways and Auxiliary Gutters	Where indicated on the Drawings and as otherwise specifically required.

3.2 RACEWAY SYSTEMS IN GENERAL

- A. Provide raceways for all wiring systems, including security, data transmission, paging, low voltage et al. 265/460 volt wiring must be kept independent of 120/208 volt wiring. Emergency system wiring must be kept independent of the normal system wiring. Where nonmetallic raceways are utilized, provide sizes as required with grounding conductor considered as an insulated additional conductor. Minimum size 3/4-inch, 3/4-inch for home runs and 1-inch minimum for power distribution. Wiring of each type and system must be installed in separate raceways.
- B. Install capped bushings on raceways as soon as installed and remove only when wires are pulled. Securely tie embedded raceway in place prior to embedment. Raceways installed below or in floor slabs must extend minimum of 4 inches above finished slab to first connector. Lay out work in advance to avoid excessive concentrations of multiple raceway runs.
- C. Locate raceways so that strength of structural members is unaffected and they do not conflict with services of other trades. Install 1-inch or larger raceways in or through structural members (beams, slabs, etc.) only when and in manner accepted by Engineer. Draw up couplings and

fittings full and tight. Protect exposed threads from corrosion with one (1) coat red lead or zinc chromate after installation.

- D. Provide raceway installation (with appropriate seal-offs, explosion-proof fittings, etc.) in special occupancy area, as required. Provide conduit seal-offs where portions of interior raceway system pass through walls, ceiling or floors which separate adjacent rooms having substantially different maintained temperatures, as in refrigeration or cold storage rooms.
- E. Provide pull wire in spare or empty raceways. Allow 5 feet of slack at each end and in each pull box. Tag both ends of wire denoting opposite and termination location with black india ink on flameproof linen tag.
- F. Above Grade: Defined as area above finished grade for building exterior and above top surface of any slabs (or other concrete work) on grade for building interior.
 - 1. Install concealed except at surface cabinets and for motor and equipment connection in electrical and mechanical rooms. Install minimum of 6 inches from flues, steam pipes, or other heated lines. Provide flashing and counter-flashing for waterproofing of raceways, outlets, fittings, etc., which penetrate roof. Route exposed raceways parallel or perpendicular to building lines with right-angle turns and symmetrical bends. Run concealed raceways in direct line and, where possible, with long sweep bends and offsets. Maximum length of 6 feet for flexible steel conduit. Each section of flexible steel conduit to contain bonding wire bonded at each end and sized as required. Provide connectors with insulating bushings. Provide sleeves in forms for new concrete walls, floor slabs and partitions for passage of raceways. Waterproof sleeved raceways where required.
 - 2. Provide raceway expansion joints for exposed and concealed raceways with necessary bonding conductor at building expansion joints and between buildings or structures and where required to compensate for raceway or building thermal expansion and contraction. Provide expansion fittings every 200 feet on outdoor conduit.
 - 3. Provide one (1) empty 3/4 inch raceway for each three (3) spare unused poles or spaces of each flush-mounted panelboard. Terminate empty 3/4 inch conduit in junction box, which after completion, is accessible to facilitate future branch circuit extension.
- G. Below Grade: Defined as area below finished grade for building exterior and below or within bottom floor slab for building interior. Below grade raceways to comply with the following:
 - 1. Project below-grade raceways 2 inches minimum above floor or equipment foundation. Install exterior underground conduits 24 inches minimum below finished grade. Do not penetrate waterproof membranes unless proper seal is provided.
 - 2. Protect metallic raceway in earth or fill with two (2) coats of asphalt base paint. Touch up abrasions and wrench marks after conduit is in place.
 - 3. In lieu of above, protect raceways with minimum of 20 mil tape appropriate for the purpose, overlapped minimum of one-half tape width.
- H. Duct Banks
 - 1. Provide duct banks and concrete encasements for both interior and exterior work as indicated on Drawings, for all circuits in excess of 600 volts, for all utility company feeders, and as otherwise indicated.
 - 2. Reinforce duct banks with steel where such duct banks are positioned beneath roads and parking areas.
 - 3. Concrete minimum $f_c = 3,000$ pounds per square inch.
 - 4. At building walls and at manhole walls, provide raceway of rigid steel, one size larger than specified raceway, for 5 feet. Pitch conduit away from building at every point where duct bank enters building or equipment.

5. Support raceways installed in duct banks every 5 feet to assure correct alignment.
6. Terminate raceways with flared bells to enable ease of pulling cable and to eliminate stress on cable. Free bells and raceway terminations of burrs and rough edges.
7. Provide concrete markers at grade where duct banks are stubbed out for future use.
8. Install utility duct banks not less than 30 inches below grade to top elevation.
9. Employ red dye inhibiting agents in concrete mix for power duct banks.
10. Provide yellow vinyl tracer ribbon 6" above each duct bank buried in backfill.

I. Fire Pump Raceways

1. Encase all raceways for fire pumps in concrete.

J. Install no raceway in concrete slab (unless otherwise denoted on floor plans) except with permission of Structural Engineer and written consent of Commissioner. Maximum conduit sizes embedded in structural concrete slabs:

Raceway Size	Min. Thickness of Concrete Slab
3/4 in.	4½ in.
1 in.	5 in.

K. Do not install raceways 1¼ inch size and larger in structural concrete slabs.

1. In no case will installation of raceways be permitted to interfere with proper placement of principal reinforcement.
2. Place raceways in structural slabs between upper and lower layers of reinforcing steel. Careful bending of conduits required.
3. Space raceways embedded in concrete slabs not less than 8 inches on centers and as widely spaced as possible where they converge at panels or junction boxes.
4. Install raceways running parallel to slabs supports, such as beams, columns and structural walls, not less than 12 inches from such supporting elements.
5. Secure saddle supports for conduit, outlet boxes, junction boxes, inserts, etc. with suitable adhesives during concrete pour of lift slab to prevent displacement.

L. Non-Metallic Raceway

1. All joints made by solvent cementing method using material recommended by raceway manufacturer. Clean components prior to assembly. Supply fittings, cement and conduit by same manufacturer.
2. Square raceway cutoffs made by handsaw or other appropriate means which does not deform conduit. Ream raceway prior to solvent cementing to couplings, adaptors, or fittings.
3. Ground electrical devices served by PVC raceways by means of ground wire pulled in raceway.
4. Use male box adapters for all box or raceway fittings to terminate plastic raceways.
5. Where separable terminations are required, make using PVC threaded adapters with locknuts or bushings. If such terminations must be watertight, install "O" rings.
6. Make bends by methods that do not deform or damage conduit. Radii of field bends not less than those established by N.E.C.
7. Provide raceway expansion fittings where necessary. Adjust position of expansion fitting proportional to temperature at installation.
8. Install raceway supports to allow PVC conduit to slide through supports as temperature changes.
9. Use galvanized rigid steel or intermediate metallic conduit elbows.

10. Non-metallic raceway not permitted to be installed within building except for secondary conductors of cold cathode lighting systems.
 11. Provide rigid galvanized steel section from service switchboard and risers on B2 level entering slab to the first 90° bend of ductbank and within 5'-0" of every manhole.
 12. Arc/fire proof tape shall be wrapped around cables in lieu of barriers, in all manholes and junction boxes where feeders are from different switchboards, if pvc conduits are used in lieu of rigid galvanized steel conduits for services below B2 level slab.
- M. Raceways in hung ceilings to be run on and secured to slab or primary structural members of ceiling, not to lathing channels or T-bars, Z-bars or other elements which are direct supports of ceiling panels. Secure conduit firmly to steel by clips and fittings designed for that purpose. Install as high as possible but not less than 1'-0" above hung ceilings.
- N. Run exposed raceways parallel or at right angles with building lines. Secure raceway clamps or supports to masonry materials by toggle bolts, expansion bolts, or steel inserts. Install raceway on steel construction with appropriate clamps which do not depend on friction or set-screw pressure alone.
- O. Clear raceway of all obstructions and dirt prior to pulling in wires or cables. Use ball mandrel (diameter approximately 85% of conduit inside diameter) followed by close fitting wire brush and wad of felt or similar material. This assembly may be pulled in together with, but ahead of cable being installed. Clean all empty raceways similarly. Clear any raceway which rejects ball mandrel.
- P. Support vertically run raceways less than 2" trade size at intervals no greater than eight feet. Support such raceways 2" trade size or larger and made up with threaded couplings, at intervals no greater than story height, or fifteen feet, whichever is smaller.
- Q. Support horizontally run raceways less than 1" trade size at intervals no greater than seven feet. Support such raceways 1" trade size or larger, at intervals no greater than ten feet.

3.3 WIREWAYS AND AUXILIARY GUTTERS

- A. Place wireways installed in hung ceilings such that cover will hinge upward from side.
- B. Provide 12" clear from wireway cover when in open position.

3.4 OUTLET, JUNCTION, AND PULLBOXES

- A. Provide outlet, junction, and pullboxes as indicated on Drawings and as required for complete installation of the various electrical systems, and to facilitate proper pulling of wires and cables. Size junction boxes and pullboxes per electrical minimum. Size boxes on empty conduit systems as if containing conductors of #4 AWG.
- B. The exact location of outlets and equipment is governed by structural conditions and obstructions, or other equipment items. When necessary, relocate outlets so that when fixtures or equipment are installed, they will be symmetrically located according to room layout and will not interfere with other work or equipment. Verify final location of outlets, panels equipment, etc., with Commissioner.
- C. Back-to-back outlets in same wall, or "thru-wall" type boxes are not permitted. Provide 12-inch minimum spacing for outlets shown on opposite sides of common wall to minimize sound transmission.
- D. Fit outlet boxes in finished ceilings or wall with appropriate covers, set flush with the finished surface. Where more than one switch or device is located at one point, use gang boxes and covers

unless otherwise indicated. Sectional switch boxes or utility boxes not permitted. Provide tile box or 4 inch square box with tile ring in masonry walls not plastered or furred. Where drywall material is utilized, provide plaster ring. Provide outlet boxes of type and size suitable for the specific application. Where outlet boxes contain 2 or more 277 volt devices, or where devices occur of different applied voltages, or where normal and emergency devices occur in same box, provide suitable barrier.

E. Types of Boxes and Fittings for Various Locations

Location	Type
Outlet	Galvanized pressed steel
Outlet exposed to moisture and outdoor	Cast type conduit fitting
Splice	Galvanized pressed steel
Splice exposed to moisture and outdoor	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction - Outdoor	Aluminum (4½" x 5" x 3" minimum)
Terminal	Sheet steel (6" x 6" x 3" minimum)
Terminal - Outdoor	Aluminum (6" x 6" x 3" minimum)

F. Pull Box Spacing

1. Provide pull boxes so no individual conduit run contains more than equivalent of four quarter bends (360° total).
2. Conduit Sizes 1¼" and Larger:
 - a. Provide boxes to prevent cable or wire from being excessively twisted, stretched or flexed during installation.
 - b. Provide boxes so that maximum pulling tensions do not exceed cable manufacturer's recommendations.
 - c. Provide support racks for boxes with multiple sets of conductors so that conductors do not rest on any metal work inside box.
3. Conduit Sizes 1" and Smaller, Low Voltage Wire and Cable (Maximum Distances):
 - 150 feet straight runs
 - 100 feet runs with one 90° bend or equivalent
 - 75 feet runs with two 90° bends or equivalent
 - 50 feet runs with three or four 90° bends or equivalent.

G. Sheet Steel Boxes

1. Size to permit pulling, racking and splicing of cables (if not on Drawings). Size to avoid exceeding manufacturer's minimum bending radius recommendations for conductors.
2. Provide access for removal and replacement of conductors, splices and equipment.
3. Minimum Dimensions of Boxes in Runs of 1½" or Larger Conduit:
 - a. Straight Pulls: Size length eight (8) times nominal diameter of largest conduit.
 - b. Angle or U-Pulls: Size such that distance between conduit entry and opposite wall of box is six times nominal diameter of largest conduit.

4. Covers: Fasten to flange or framework of box with machine bolts, machine screws threaded into tapped holes or sheet metal screws as required.
5. Plug any open knockouts not utilized.

H. Pull and Splice Boxes, Outdoors

1. Where size of box is not indicated, size to permit pulling, racking and spicing of cables.

Braze ground connector suitable for copper cables to inside of box.

I. Floor Boxes

1. Prior to Concrete Pour:

- a. Orient as shown on Drawings.
- b. Firmly support boxes.
- c. Adjust leveling screws to insure box covers are flush with finished floor.
- d. Plug unused openings with proper fittings and seal joints with compound for exclusion of concrete and moisture.

2. After Concrete Pour:

- a. As soon as traffic is permitted on slab, remove any accumulation of water and foreign matter to avoid corrosion and rust.
- b. Insure covers are flush with finished floor.
- c. Install cover plates and accessories after floor finishing materials have been installed; refer to Drawings for requirements for carpet flanges, bushed standpipe, split nozzles, and types of covers.

J. Identification Labels for all low voltage, pull, splice and junction boxes in main feeder and subfeeder runs, indicating nominal system voltage, identification of the function of the pullbox, load served, and other pertinent information as requested by Engineers/or Commissioner:

1. Apply labels after painting of boxes, conduits, and surrounding areas completed.
2. Clean surfaces before applying labels; clean aluminum surfaces with solvent wipe.
3. Apply labels on cover and minimum of one fixed side; one label visible from floor where boxes installed exposed.

3.5 FIRE PUMP AND SERVICE ENTRANCE RACEWAYS

- A. Use rigid steel heavy-wall conduits.
- B. Encase in concrete with 2" of cover.
- C. Paint fire pump duct bank red.

3.6 SLEEVES

- A. Where sleeves are required for installation of electrical work passing through walls or floors, furnish and install under this Section of Specification unless indicated otherwise on Drawings. Use galvanized or black enameled rigid steel conduit or Schedule 40 black steel pipe. Do not use aluminum conduit. Where specific sizes not indicated on the Drawings, size sleeves to provide ½ inch clearance around outside surface of item for which installed. Cut flush with wall surfaces and extend two inches above finished floor level or as indicated on Drawings.

- B. For interior walls and for floors, pack space between conduit, ground cable or similar items and sleeves to full depth of wall or slab thickness with fire stopping.

END OF SECTION 26 05 33

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SECTION 26 27 26 – WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide wiring devices in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Switches.
- B. Receptacles.
- C. Cover Plates.
- D. Special Receptacles.
- E. Clock Outlets.
- F. Simplex Power Outlets.
- G. Locking Receptacles.
- H. Explosion-Proof Receptacles.
- I. Key Cylinder Lock Switches.
- J. Key-Type Toggle Switches.
- K. Hazardous Area Switches.
- L. Door Operated Switches.

1.3 SUBMITTALS

- A. Submit manufacturer's catalog cuts and specifications for:
 - 1. Switches.
 - 2. Receptacles.
 - 3. Cover Plates.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. Switches:
 - a. Federal Specification Standard WS-896E.
 - b. ANSI C62.41, U.L. 20.

2. Receptacles:
 - a. NEMA Standard WD-1, 3.02 through 3.10
 - b. U.L. Standard 498 Federal Specification WC596-D.
 - c. U.L. 943 Class A

PART 2 - PRODUCTS

2.1 SWITCHES

- A. Specification grade, flush mounting, quiet-operating AC type, with toggle operator, heat-resistant plastic housing and self-grounding metal strap. Silver alloy contact. Rated 20A at 120-277V and capable of full capacity on tungsten or fluorescent lamp load. Design for side or back wiring with up to Number 10 wire.
- B. Single-pole, double-pole, 3-way, 4-way, pilot or keyed type, as indicated on Drawings or required.
- C. Red, illuminated toggle type for switches controlling lighting connected to emergency power system (illuminated when switch is in off position).
- D. 3-position, momentary-contact, center-off type to match other switches for switches controlling lighting by way of low-voltage lighting control relays.
- E. Switch and Pilot Light: Switch as indicated with illuminated toggle in the ON position for visual load monitoring.
- F. Color of normal devices selected by Commissioner.
- G. Acceptable Manufacturers
 1. Switches:
 - a. Leviton - 1120 Series
 - b. Hubbell - 1220 Series
 - c. General Electric - 5950 Series
 - d. Or Approved Equal
 2. Switches for Emergency Systems:
 - a. Leviton - 1220 LH Series
 - b. Hubbell - 1220 IL Series
 - c. General Electric - SL 122/322 Series
 - d. Or Approved Equal
 3. Switch & Pilot Light:
 - a. Leviton - 1220 PL Series
 - b. Hubbell - 1220 PL Series
 - c. General Electric - SP 121 Series
 - d. Or Approved Equal

2.2 DUPLEX CONVENIENCE RECEPTACLES

- A. Two-pole, three-wire, grounding, NEMA 5-20R and ANSI standard type, specification grade, with brass contacts that accept plug with two parallel blades and one grounding blade. Heat-resistant plastic enclosure with nylon face. Two grounding screws. Break-off terminals for 2-circuit wiring. Rated 20 amperes at 125-volt electrical alternating current.
- B. Red for devices connected to emergency system.
- C. Color of normal devices selected by Commissioner.
- D. Ground fault circuit interrupters to interrupt leakage currents between 4-6 M.A. having a maximum circuit current of 20 amperes. Employ feed through or non-feed through devices as indicated, or required.
- E. Isolated ground receptacles to be same as duplex convenience receptacles but to have grounding which is isolated from mounting strap and any other path to ground, and marking on face to indicate isolated ground.
- F. Acceptable Manufacturers
 - 1. Duplex Convenience Receptacles:
 - a. Leviton 5362
 - b. Hubbell 5362
 - c. General Electric GE5362
 - d. Or Approved Equal
 - 2. Ground Fault Circuit Interrupters:
 - a. Leviton 6899-H
 - b. General Electric GF5342
 - c. Hubbell GF5362
 - d. Or Approved Equal
 - 3. Isolated Ground Receptacles:
 - a. Leviton 53621G
 - b. Hubbell IG-5362
 - c. General Electric GE5362-IG
 - d. Or Approved Equal

2.3 COVER PLATES

- A. Provide cover plates for wall receptacles, outlets, and switches of 302 stainless steel with satin finish, unless otherwise noted. When two or more switches or devices are shown in one location, mount under a common plate.
- B. Cast aluminum metal cover plate with fiber shield and spring loaded cover for exterior switches and those in mechanical rooms which act as plenums.
- C. Cast aluminum metal plate with stainless steel spring-loaded, gasketed, double flap lift cover to remain locked in either open or closed position for exterior receptacles and those in mechanical rooms which act as plenums.

- D. Acceptable Manufacturers
 - 1. By same manufacturer as device utilized.

2.4 OUTDOOR LOCATIONS

- A. Each receptacle installed in a damp location shall be corrosion resistant having all metal parts from stainless steel or be nickel plated brass.
- B. Cast aluminum metal cover plate with fiber shield and spring loaded cover for exterior switches and those in mechanical rooms which act as plenums.
- C. Cast aluminum metal plate with stainless steel spring-loaded, gasketed, double flap lift cover to remain locked in either open or closed position for exterior receptacles and those in mechanical rooms which act as plenums.
- D. Ground fault circuit interrupters to interrupt leakage currents between 4-6 M.A. having a maximum circuit current of 20 amperes. Employ feed through or non-feed through devices as indicated, or required.

2.5 PLUG STRIP

- A. Provide plug strip suitable for the branch circuiting and in the length as shown on the drawings.
- B. Plug strip shall be grounding type, painted color as selected by Commissioner.
- C. Power Type:
 - 1. Single receptacle outlets mounted on 9 inch centers or as shown on drawings.

PART 3 - EXECUTION

3.1 SWITCHES

- A. Mount switches vertically with "on" position on top, unless noted or specified otherwise.
- B. Where switches indicated near doors, corner walls, etc., mount not less than 2 inches and not more than 12 inches from trim.
- C. Carefully coordinate location of switches to insure locations at strike side of doors.
- D. Furnish and install engraved legend for each switch that controls motors, equipment systems, etc., not located within sight of controlling switch.

3.2 RECEPTACLES

- A. Unless otherwise noted, mount receptacle horizontally with U-shaped ground position at left.

3.3 GROUND FAULT INTERRUPTERS

- A. Swab all conduits clear of moisture.
- B. Do not combine G.F.I. protected circuits with other circuits in same raceway; only one G.F.I. circuit per raceway.

3.4 DEVICE GROUNDING

- A. Provide a Number 12 grounding conductor from the device grounding terminal to the panelboard ground bus.

3.5 INSTALLATION

- A. All devices flush-mounted except as otherwise noted on drawings.
- B. Locations
 - 1. Comply with layout drawings for general location.
 - 2. Relocate outlets obviously placed in location or manner not suitable to room finish.
 - 3. Avoid placing outlets behind open doors.
- C. Mounting heights as specified and as indicated on the Architectural drawings take precedence over heights specified in electrical specifications.
- D. Ganging of Switches: Provide barriers between ganged 277 volt switches of different phases.
- E. Fastening: Securely fasten devices into boxes and attach appropriate cover plates.

END OF SECTION 25 27 26

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SECTION 26 28 13 – FUSES (600 V AND LESS)

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide fuses in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fuses.
B. Spare Fuse Cabinets.

1.3 SUBMITTALS

- A. Shop Drawings

1. Submit dimensioned drawings of each spare fuse cabinet by type and size.

- B. Product Data

1. Provide complete set of let-through curves for each type of fuse.
2. Submit listing of all types, sizes and quantity of fuses which will be installed including location of each.
3. Submit listing of all spare fuses by types, sizes and quantities, which will be furnished for placement in the respective fuse cabinets.
4. Short circuit current analysis is based upon Bussman fuse characteristics for let-through currents. If fuses by another manufacturer are utilized, provide appropriate fuse curves and let-through values which correspond to Bussman values shown on Drawings. Submit comparative chart of fuse substitutions for review prior to acceptance of substitutions. Comparative chart shall include the following.
 - a. Cross reference of fuses to be used in place of Bussman fuse type designation indicated on the Drawings or specified herein.
 - b. Cross reference of let-through currents of the fuses to be used compared to the Bussmann fuses indicated on the drawings or specified herein (e.g., design let-through current of feeder point No. on drawings is amperes. Let-through current for substitute fuse is amperes.).

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. U.L. Standard #198.
 2. U.L. Standard #977.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Mains, Feeders and Branch Circuits

1. Circuits 601 to 6000 amperes shall be protected by Class L, Bussmann System 300 Low Peak Yellow Time-Delay fuses, Type KRP-C (amp) SP.
2. Circuits 0 to 600 amperes shall be protected by Class RKI, Bussmann System 300 Low Peak Yellow dual element fuses, type LPN-RK (amp) SP for 250 volt applications and LPS RK (amp) SP for 600 volt applications.
3. A minimum 2:1 ratio must be allowable between the ampere rating of the main fuse and that of the feeder fuse, and between the feeder fuse and branch circuit fuse to obtain selective coordination and minimize switch size.
4. All fuses shall be of the same manufacturer.

B. Spares: Upon completion of the building, provide the City of New York with spare fuses as indicated below:

1. 10 percent (minimum of 3) of each type and rating of installed fuses shall be supplied as spares.
2. Spare fuse cabinets shall be provided to store the above spares.
3. Spare fuse cabinets shall be provided as a minimum in the following locations:
 - a. Each switchgear room.
 - b. Each major mechanical equipment room.
 - c. Each elevator machine room.

C. Labels

1. "Low-Peak Yellow" notice labels to alert the end user of the engineered level of protection of the electrical equipment shall be field installed by the electrical contractor. They shall be marked with the proper fuse rating per the specifications and placed in a visible location in the enclosure.

2.2 ACCEPTABLE MANUFACTURERS

A. Fuses

1. Bussmann
2. Cefco
3. Chase-Shawmut
4. Reliance
5. Or Approved Equal

B. Spare Fuse Cabinet

1. By fuse supplier.

PART 3 - EXECUTION

3.1 GENERAL

- A. Do not install fuses until equipment is ready to be energized.
- B. Provide all fuses except as otherwise noted.
- C. Labels: Paste appropriate label within each switch, motor starter, or panelboard door, or at location next to fuse clips. Complete blank spaces on labels for nonstandard fuses in ink with appropriate fuse data.

END OF SECTION 26 28 13

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SECTION 26 28 16 – DISCONNECT SWITCHES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide disconnect switches in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Safety Switches.
- B. Manual Control Switches.

1.3 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturers' data for all disconnect switches.
 - 2. Identify motor or equipment served by each switch; indicate nameplate inscription.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest applicable recommendations of the following:
 - 1. U.L. Standards #98 (File #4776) and #508.
 - 2. Federal Specification W-S-865C.
 - 3. NEMA Standard KS1-1975.
 - 4. U.L. 20 and Federal Specification Test Standards for Toggle Switches.

PART 2 - PRODUCTS

2.1 SAFETY SWITCHES

- A. Heavy-duty, horsepower rated, single-throw knife switch with quick-make/quick-break mechanism, capable of full load operations. Meet NEMA and U.S. Government specifications for Class A switches.
- B. Provide with contact arc-quenching devices, such as magnetic blowouts or snuffing plates. Provide self-aligning switchblades with silver alloy contact areas, designed so that arcing upon making and breaking does not occur on final contact surfaces. Provide with high-pressure, spring-loaded contact. Mount switch parts on high-grade insulating base.
- C. Enclosure: NEMA I with hinged door, and defeatable interlock when switch is in "ON" position, able to be padlocked in "ON" and "OFF" positions. Utilize NEMA 3R (rain-tight) enclosure for exterior installations.
- D. Size, fusing and number of poles as shown or as required. Where fused, must be provided with U.L. listed rejection feature to reject all but Class R fuses. Provide horsepower rated switch to match motor load if no size is shown. Use 3 pole plus solid neutral switches on four wire circuits and 3 pole switches on all other circuits, unless otherwise noted.

- E. Lugs must be U.L. listed for aluminum and/or copper conductors and be front removable. Circumferential compression type fittings must be used on all aluminum conductors.
- F. Provide six (6) pole switches for connection to motors with the following starter types:
 - 1. Non-reversing - two step - part winding - star connected.
 - 2. Non-reversing - full voltage - two speed separate winding.
 - 3. Non-reversing - full voltage - two speed single winding.
 - 4. Where otherwise required.
 - 5. Provide auxiliary contacts for switches where required or where indicated on Drawings.

2.2 TOGGLE TYPE MANUAL CONTROL SWITCHES

- A. Provide switches that operate at their full rating with fluorescent, tungsten, and resistance loads - and at 80% of their rated capacity with motor loads.
- B. Switches to be heavy duty and have:
 - 1. Arc-resisting bodies.
 - 2. Slow make-and-break mechanisms.
 - 3. Silver alloy contact buttons.
 - 4. Side or back wiring with up to No. 10 AWG solid conductors.

2.3 ACCEPTABLE MANUFACTURERS

- A. Safety Switches
 - 1. Same manufacturer as the switchboard and/or panelboard.
- B. Toggle Type Manual Control Switches
 - 1. Square D Class 2510, 11 or 12
 - 2. Westinghouse Type MS or B100
 - 3. General Electric Type RB with enclosure
 - 4. Or Approved Equal

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Provide each motor over ½ HP with a horsepower rated safety-type disconnect switch.
- B. Provide piece of equipment utilizing multi-phase power with a safety-type disconnect switch.
- C. Provide each piece of equipment utilizing single-phase power but protected at over 30 amperes with a safety-type disconnect switch.
- D. Equipment other than that mentioned above may utilize toggle type manual control switch properly sized and rated for equipment it disconnects.
- E. Factory installed disconnect switches may be used to satisfy the above requirements.

3.2 MOUNTING

- A. Provide connections and wiring to and from each disconnect switch.
- B. Mount disconnect switches on adjacent wall or from floor with independent supports. Do not mount switches on fan housings.
- C. Mount switch enclosure rigidly and with proper alignment on building structure or steel supports with centerline of operating handle not more than 6 feet above finished floor unless otherwise required. Use steel supports fabricated from standard rolled structural steel shapes or framing channel to provide one-inch separation between enclosure and building wall for vertical flow of air.
- D. Install fuses as specified in this Division.
- E. Completed installation shall contain no extraneous openings.

3.3 IDENTIFICATION

- A. Provide nameplate identification of all disconnect switches in accordance with these specifications.

END OF SECTION 26 28 16

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SECTION 26 29 13 – INSTALLATION OF INDIVIDUAL MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Install individual motor controllers specified in Division 26 in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Installation of Individual Motor Controllers.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 INSTALLATION OF MOTOR CONTROLLERS

- A. Install individual motor controller on nearby wall, within ten feet of motor to be controlled or adjacent to motor on steel supports fabricated from standard rolled structural steel shapes or framing channel, or as required by the Drawings. Do not mount on equipment or fan housings.
- B. Perform all necessary field modifications and adjustments to each individual motor controller to provide required operation.
- C. Coordinate installation with remote control devices and remote indicating devices for complete functional operation.
- D. Overload Elements: Install properly rated elements in controllers.
- E. Wiring: Install incoming and outgoing power circuits.
- F. Nameplates: Install equipment identification nameplates on exterior of doors with self-tapping screws.
- G. Completed installation shall contain no extraneous openings.

3.2 CONTROLLER DISCONNECT SWITCH

- A. Provide fused switches as noted on Drawings or required by Code and where multiple motor controllers are served by common branch circuit or feeder.

3.3 COORDINATION

- A. Review Division 26 Contract Documents for required starter accessories, interlocks, etc. Failure to fully coordinate this item with Division 26 requirements shall in no way relieve Section 23 09 23 trade from providing a complete, functional, and coordinated system as described.

END OF SECTION 26 29 13

SECTION 26 41 13 – LIGHTNING PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide all labor, materials and items of service required for the completion of a functional and unobtrusive lightning protection system in accordance with the Contract Documents.

1.2 STANDARDS

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest provisions and latest recommendations of the following:

1. Underwriters' Laboratories Master Label Code 96A.
2. N.F.P.A. Code No. 780
3. ANSI C-61.2.

- B. Certificates: Provide Underwriters' Laboratories Master C Label for attachment to the building.

1.3 QUALITY ASSURANCE

- A. The system to be provided shall be the standard product of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer's latest approved design. The equipment manufacturer shall also be a U.L. listed and approved manufacturer.

1.4 COORDINATION

- A. Ensure that installation including air terminals does not conflict with the operation of other rooftop systems. Where required provide alternate components such as spring mounted air terminals to accomplish this coordination.

- B. Coordinate location of Master "C" label mounting with Commissioner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Heary Brothers.
- B. Westdodd Lightning Protection Company.
- C. Mr. Lightning (Independent Protection Co.).
- D. AC Lightning Security.
- E. Thompson Lightning Protection.

PART 3 - EXECUTION

3.1 TYPE OF SYSTEM

- A. Install all conductors and complementary parts in a concealed manner so completed work is unobtrusive and does not detract from appearance of the structure.
- B. All areas of flat roofs are to be cross run with this same size conductor cable so that no area larger than 50 feet by 150 feet remains unprotected. Mount points on cast copper bronze point bases and cable clips to the finished roof to avoid any roof penetrations.

3.2 AIR TERMINALS

- A. Air terminals shall be ½" x 12" solid copper nickel tipped and shall extend at least 10 inches above the object to be protected. All air terminal bases shall be cast bronze with stainless steel bolt-pressure cable connectors. The air terminals should be spaced so as not to exceed 20' apart around the outside perimeter of the roof or the ridge and not over 50 square feet apart through the center of flat roof areas.

3.3 CONDUCTORS

- A. Conductors shall consist of U.L. listed 28 strands of 14 gauge copper wire weighing 375 lbs. per 1000 feet and installed in accordance with the UL Code. A perimeter cable shall be installed around the entire main roof, and all penthouses and cooling towers. Each perimeter cable shall be connected to at least (2) down leads, providing a two way path to ground from each air terminal. All center roof air terminals shall be interconnected with conductors to the outside perimeter cable. Conductors on the flat roof areas may be run exposed. Ground connections shall be made around the perimeter of each roof and to the main down conductor at a maximum of 100'-0" on centers.

3.4 CONNECTORS AND FASTENERS

- A. Use approved connectors of proper electric and mechanical characteristics.
- B. Rigidly and permanently attach conductors and air terminals to the building with fasteners of proper strength and design.
- C. Fasteners shall be spaced not to exceed 3'-0" centers.

3.5 DOWN CONDUCTORS

- A. On buildings with structural steel frame work the structural steel columns of the building may be used as the main down conductor from roof to ground for the lightning protection system. The columns used shall in no case average over 100' apart. Where the steel columns are used, a connection to the top of steel shall be made thru the roof using a ¾" PVC sleeve.
- B. All pitch pans or proper roof membrane flashings shall be furnished, installed and weatherproofed by the roofing contractor.
- C. All ¾" PVC sleeves shall be furnished, installed, weatherproofed and maintained free from obstructions by the electrical contractor.

3.6 GROUNDING SYSTEM

- A. Interconnect lightning protection ground to other building ground systems.

3.7 GROUNDING OF METAL ELEMENTS

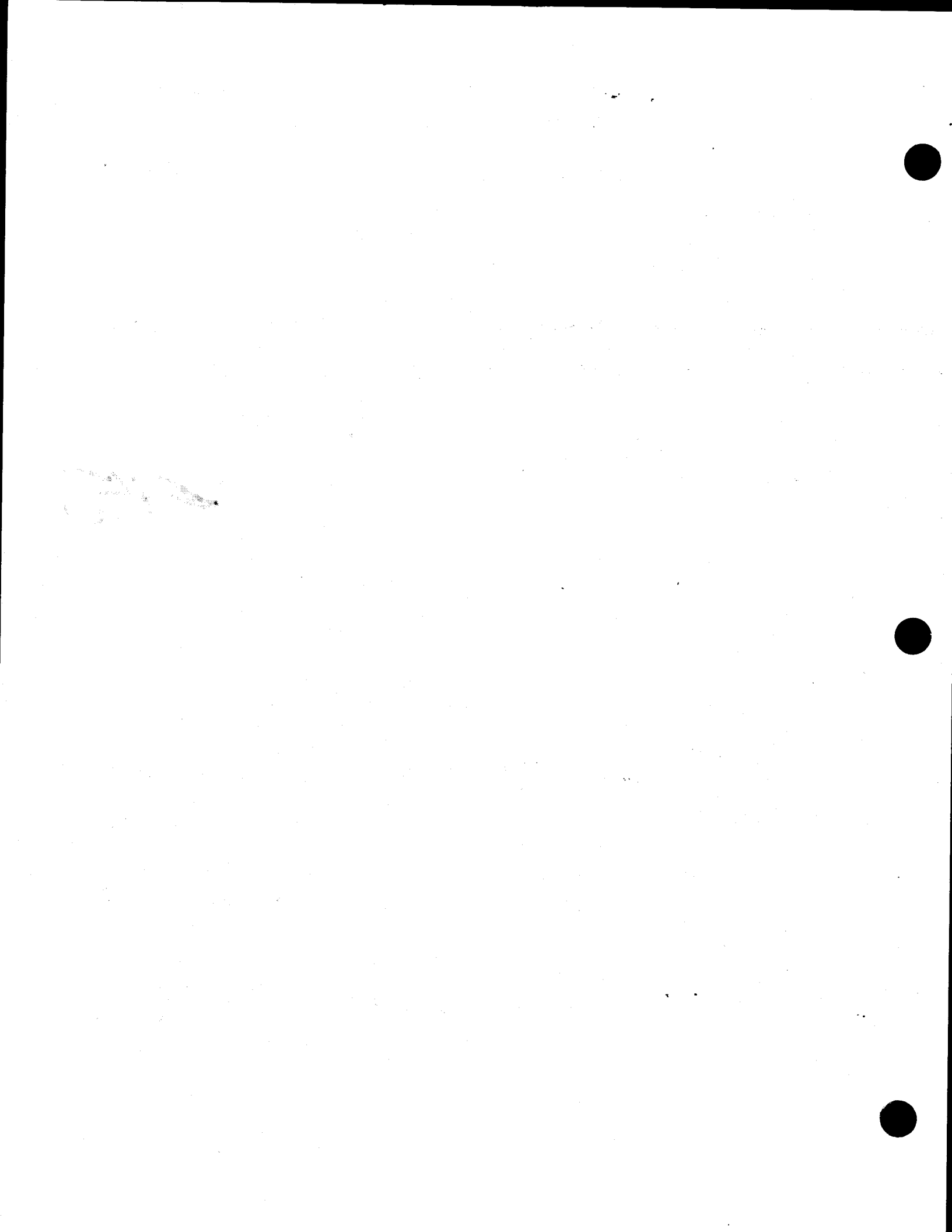
- A. Interconnect and ground to the condenser system metal drain covers, ventilators, vent stacks, pipes, roofing or siding, ridge rolls, valleys, crickets, eaves troughs, downspouts, ladders, ducts, cold water supply piping, and any other metallic object or surface of a size presenting a capacitance hazard, or within 6 feet of any portion of the lightning protection system, including grade mounted items.

3.8 GROUND RODS

- A. Extend cable from ground rods to steel column and connect as indicated on contract documents. Where cable must be extended, all connections shall be made with exothermic welds

END OF SECTION 26 41 13

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

June 16, 2016

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

CO290BCHJ-2

Bronx Hall of Justice Remediation – Bid Package 2

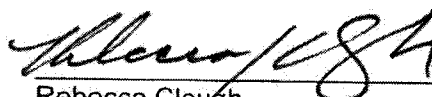
This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

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

1. **The Bid Opening for the contract described below scheduled for June 21, 2016, at 2:00 pm is rescheduled to June 24, at 2:00 pm.**
Contract #1 – General Construction Work
2. **Bidders Questions and Responses to Questions:**
See Attachment A.
3. **Revisions to Volume 2:**
See Attachment B.
4. **Revisions to the Specifications:**
See Attachment C.
5. **Revisions to the Drawings:**
See Attachment D.

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

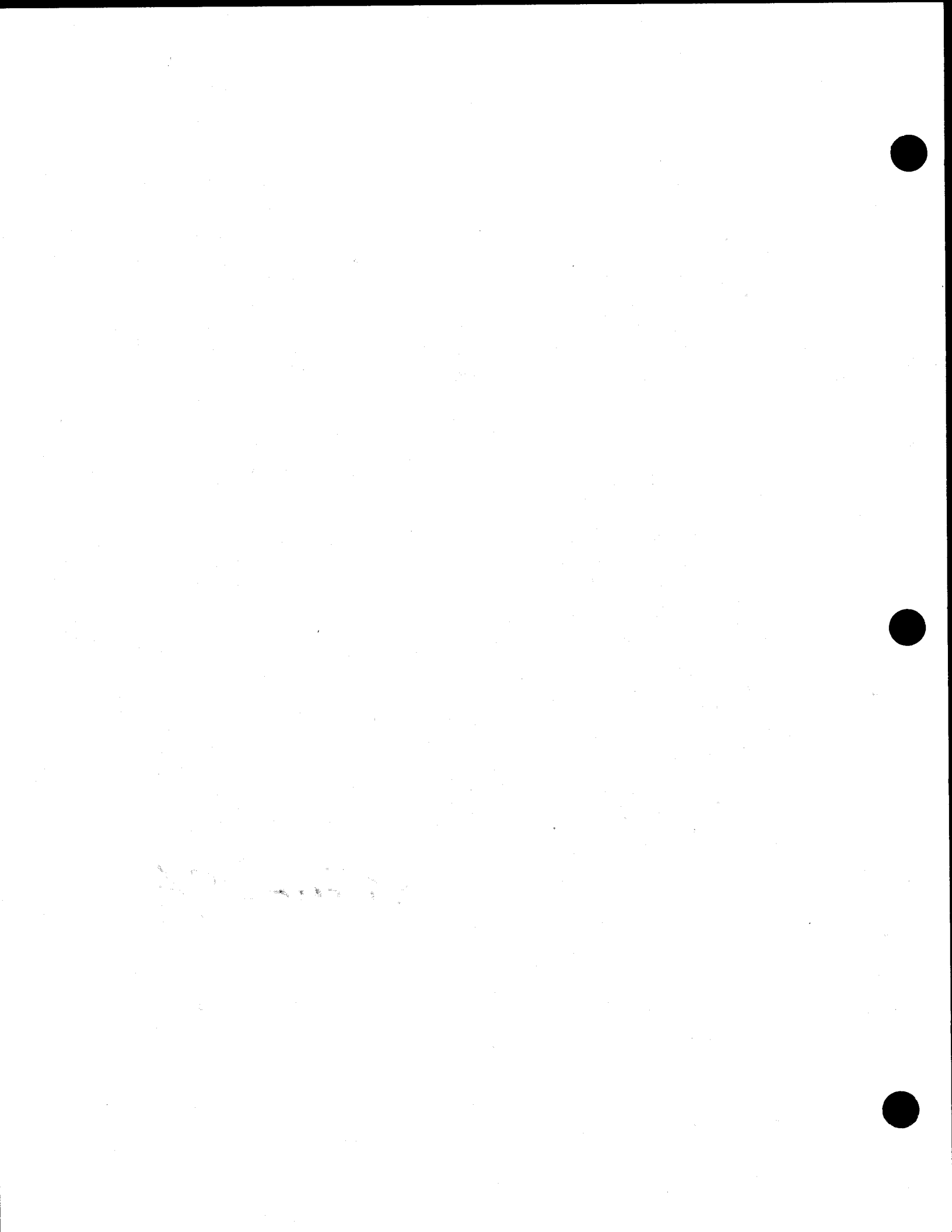
If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-3170, (718) 391-1016, or by fax at (718) 391-2615.



Rebecca Clough
Assistant Commissioner
Courts/ Correctional Institutions/
Health Facilities

Name of Bidder

By: _____



DDC PROJECT #: CO290BCHJ-2

PROJECT NAME: Bronx Hall of Justice Remediation – Bid Package 2

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	Please provide tile style and color of existing tile to be able to match the repairs needed. There is no finish schedule in the bid documents.	Refer to Attachment C, Revisions to the Specifications, for revised section '09 30 00 - Tiling.' Refer to Drawing Sheets A-550 and A-560 in conjunction with the full drawing set to identify locations of potential incidental tile replacement in elevator lobbies.
2	The Structural Drawings show a much smaller dunnage footprint than what is on the Architectural Drawings. Also, no structure is included on S-110 to allow for walkway around the dry coolers. Please advise.	Refer to Attachment D, Revisions to the Drawings, for revised Details 1, 2, 3, 4 and 6 on Drawing Sheet S-110.
3	Please provide a door schedule indicating which hardware set to use.	Refer to Drawing Sheets A-126 to A-143 for door locations and quantities for Item F. Refer to the Project Description for Item F in the Addendum to the General Conditions. Refer to Attachment C, Revisions to the Specifications, for revised section '08 71 00 - Door Hardware.'



DDC PROJECT #: CO290BCHJ-2

PROJECT NAME: Bronx Hall of Justice Remediation – Bid Package 2

ATTACHMENT B – REVISIONS TO VOLUME 2

Delete the following Project Labor Agreement documents and replace with updated 'Solicitation and Contract Version – June 2016' documents, included with this Addendum:

- PLA Notice
- Frequently Asked Questions
- Renovation PLA 2015 - 2018

DDC PROJECT #: CO290BCHJ-2

PROJECT NAME: Bronx Hall of Justice Remediation – Bid Package 2

ATTACHMENT C – REVISIONS TO THE SPECIFICATIONS

The following Sections have been modified:

- Specification Section 08 71 00 Door Hardware (Revised as per below)

PART 1 – GENERAL

Add: Article 1.1 SUMMARY

- B. Related Sections:
 1. Section 08 11 12 – Steel Doors

PART 2 – PRODUCTS

Add: Article 2.4 CLOSERS

- F. Provide parallel arms where regular closers would protrude into corridor. All closers shall be installed on room side of door.

Delete: Articles 2.7-2.11

Add: Article 2.7 BOLTS

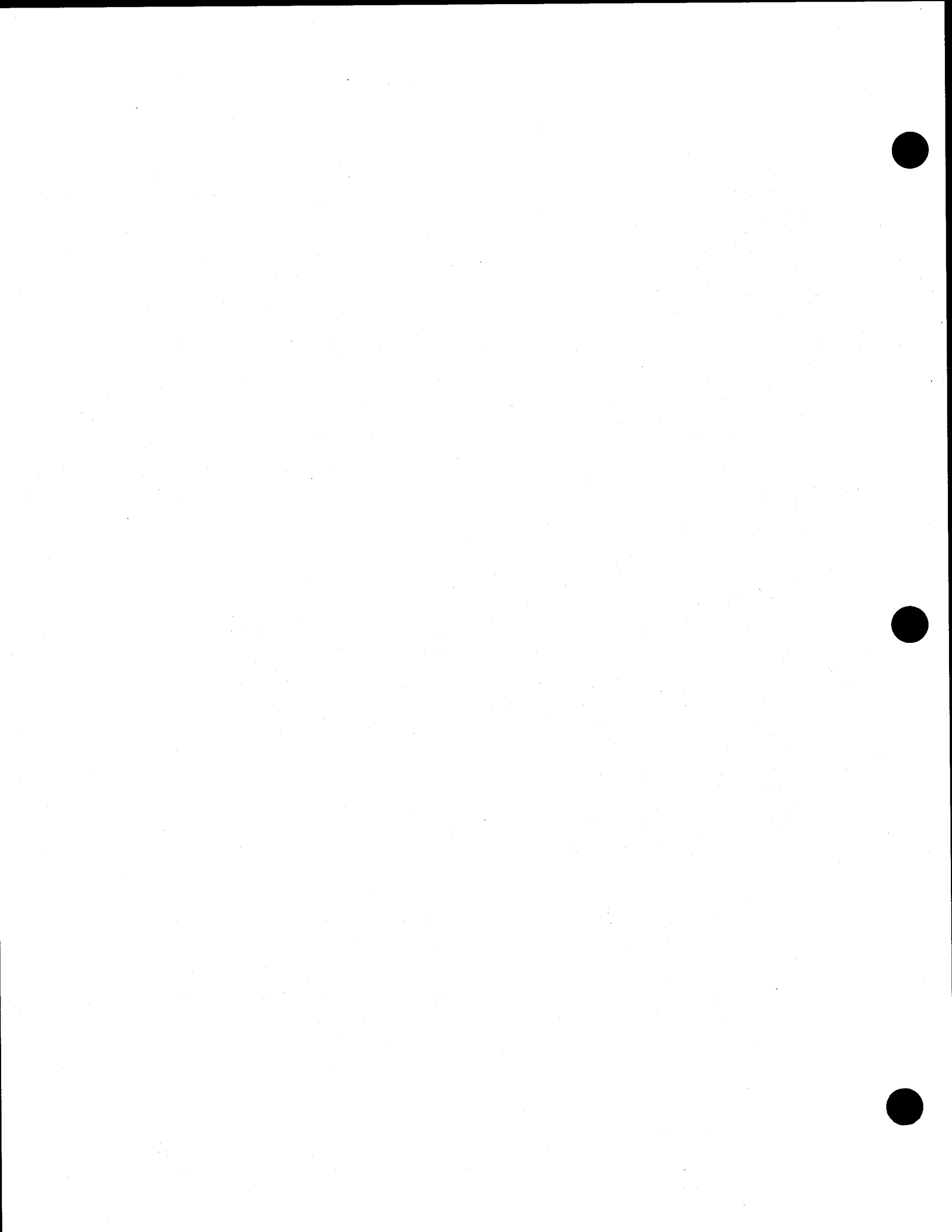
- A. Acceptable Manufacturers:
 1. Rockwood (Scheduled).
 2. Glynn-Johnson.
 3. Ives.
 4. Approved equal.

Add: Article 2.8 SILENCERS

- A. Acceptable Manufacturers:
 1. Rockwood (Scheduled).
 2. Ives.
 3. Glynn-Johnson.
 4. Approved equal.
- B. Provide silencers for all non-gasketed metal frames. Provide 3 for each single swing door and 2 for pairs of doors.

Add: Article 2.9 FINISHES

- A. Finishes Specified:
 1. Interior Hinges (H.M.) US26D (626)
 2. Locks and Latches 26D (626)
 3. Core 15
 4. Door Closers EN
 5. Miscellaneous US26D (626)



PART 3 – EXECUTION

Revise: Article 3.4 **HARDWARE SETS**

HW Set 1

(6)	Butts	TA2714
	Lockset (Storage)	8204
(2)	Flush Bolt	555
	Dust Proof Strike	570
	Door Closer	281 P9
(2)	Silencers	608

- Specification Section 09 30 00 Tiling (Revised as per below)

PART 2 – PRODUCTS

Revise: Article 2.1 **MANUFACTURERS**

A.2. Agglomerated Stone Tile:

- Dupont Zodiaq.
- Permagrain Products, Inc. (Scheduled)
- Rover North America.
- Silestone, Inc.; as supplied by Renaissance Building Products, Inc.
- Approved equal

Add: Article 2.8 **MISCELLANEOUS MATERIALS**

- Metal Reveals: U-Shape, height to match tile and setting-bed thickness, designed specifically for wall applications, stainless steel unless otherwise indicated; ASTM A 666, 300 Series.

PART 3 – EXECUTION

Add: Article 3.8 **AGGLOMERATED STONE TILE SCHEDULE**

- Basis of Design: Provide Armstone "Treasure" Series agglomerated stone tiles with honed finish, 12 inch by 24 inch by 3/8 inch thick; Color #139, Amethyst; Permagrain Products, Inc., or equal.



DDC PROJECT #: CO290BCHJ-2

PROJECT NAME: Bronx Hall of Justice Remediation – Bid Package 2

ATTACHMENT D – REVISIONS TO THE DRAWINGS

Structural Drawing S-110 (Revised as per below)

- Detail 1: Walkway and steps added.
- Detail 2: Walkway and steps added.
- Detail 3: Beams identified for walkway.
- Detail 4: Beams identified for walkway.
- Detail 6: Cantilevered beam identified for walkway.

2015 Project Labor Agreement

NOTICE: THIS CONTRACT IS SUBJECT TO A NEW PROJECT LABOR AGREEMENT EXECUTED IN 2015

This contract is subject to the attached Project Labor Agreement (“PLA”) entered into between the City and the Building and Construction Trades Council of Greater New York (“BCTC”) affiliated Local Unions. By submitting a bid, the Contractor agrees that if awarded the Contract the PLA is binding on the Contractor and all subcontractors of all tiers. The bidder to be awarded the contract will be required to execute the attached Letter of Assent prior to award. Contractor shall include in any subcontract a requirement that the subcontractor, and sub-subcontractors of all tiers, become signatory to and bound to the PLA with respect to the subcontracted work. Contractor will also be required to have all subcontractors of all tiers execute the attached Letter of Assent prior to such subcontractors performing any work on the Project. Bidders are advised that the City of New York and City agencies have entered into multiple PLAs. The terms of each PLA, while similar, are not identical. All bidders should carefully read the entire PLA that governs this Contract.

In addition, please note that there are significant revisions between the 2015 PLA attached to this bid and the prior Citywide Renovation PLA. The Contractor is urged to review the entire PLA. Significant changes include:

- **Micro Work Orders:** For JOCS and Requirements contracts, Task Orders or Work Orders that do not exceed \$10,000 are not subject to the PLA. See PLA Article 3, Section 1.
- **On Call Contracts:** Provisions have been added regarding the referral of workers for on call contracts where Contractors are required to respond on an expedited basis. See PLA Article 4, Section 8.
- **Grievances:** The grievance procedure governing disputes under the PLA has been clarified. See PLA Article 9, Section 1.
- **Delinquent Contractors:** Contractors and Subcontractors who do not make required payments to union funds on a timely basis are subject to requirements to submit cancelled checks or another form of proof of payment in addition to certified payroll reports when requesting payment. See PLA Article 11, Section 2.
- **Payment to Union Funds for Non-Union Workers:** Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for “core” non-union employees (working pursuant to Article 4, Section 2 of the PLA) who are already covered under such bona fide private benefit plans. See PLA Article 11, Section 2.
- **Veterans Day:** Veterans Day has been added to the list of standard holidays. See Article 12, Section 4.
- **Reporting Pay for Weather Events:** The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See Article 12, Section 6.

To the extent that the terms of the PLA conflict with any other terms of the invitation for bids, including the Standard Construction Contract, the terms of the PLA shall govern. For example, the PLA section that authorizes the scheduling of a four-day week, ten hours per day on straight time at the commencement of the job, PLA Article 12, section 1, overrides the Standard Construction Contract's provision concerning a five-day work week with a maximum of eight hours in a day, Standard Construction Contract Article 37.2.1. Where, however, the invitation for bids, including the Standard Construction Contract, requires the approval of the City/Department, the PLA does not supersede or eliminate that requirement.

In addition to the various provisions regarding work rules, Contractors should take special note of the requirement that Contractors and Subcontractors make payments to designated employee benefit funds. See PLA Article 11, Section 2. The PLA also contains provisions for what occurs when a Contractor or a subcontractor fails to make required payments into the benefit funds, including potentially the direct payment by the City to the benefit fund of monies owed and corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2. The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

This Contract is subject to the apprenticeship requirements of Labor Law §222 and to apprenticeship requirements established by the Department pursuant to Labor Law §816-b. Please be advised that the involved trades have apprenticeship programs that meet the statutory requirements of Labor Law 222(e) and the requirements set by the Department pursuant to Labor Law §816-b. Contractors and subcontractors who agree to perform the Work pursuant to the PLA are participating in such apprenticeship programs within the meaning of Labor Law §222(e) and the Department's directive.

If this Contract is subject to the Minority-Owned and Women-Owned Business Enterprise ("M/WBE") program implemented pursuant to New York City Administrative Code §6-129, the specific requirements of M/WBE participation for this Contract are set forth in Schedule B entitled the "Subcontractor Utilization Plan," and are detailed in a separate Notice to Prospective Contractors included with this bid package. If such requirements are included with this Contract, the City strongly advises Contractors to read those provisions, as well as PLA Article 4, Section 2(C), carefully. A list of certified M/WBE firms may be obtained from the Department of Small Business Services (DSBS) website at www.nyc.gov/getcertified, by emailing DSBS at MWBE@sbs.nyc.gov, by calling the DSBS certification hotline at (212) 513-6311, or by visiting or writing DSBS at 110 William St., 7th floor, New York, New York, 10038.

The local collective bargaining agreements (CBAs) that are incorporated into the PLA as PLA Schedule A Agreements are available on computer disk from the Department's Contract Officer upon the request of any prospective bidder. Please note that the "PLA Schedule A" is distinct from the Department's Schedule A that is a part of this invitation for bids.

A contact list for the participating unions is set forth after the FAQs.

Below are answers to frequently asked questions (FAQs) about this PLA:

1. **Q.** Does a Contractor need to be signatory with the unions in the NYC Building and Construction Trades Council in order to bid on projects under the PLA?
A. No, any contractor may bid by signing and agreeing to the terms of the PLA. The contractor need not be signatory with these unions by any other labor agreement or for any other project.
2. **Q.** Does a Contractor agreeing to the PLA and signing the Letter of Assent create a labor agreement with these unions outside of the project covered by the PLA?
A. No, the PLA applies only to those projects that the Contractor agrees to perform under the PLA and makes no labor agreement beyond those projects.
3. **Q.** Do the provisions of the PLA apply equally to subcontractors as well as contractors and how does the PLA affect the subcontractors that a bidder may utilize on the project?
A. Yes, the PLA applies to subcontractors and all subcontractors must agree to become party to the PLA. See PLA Art. 2, Sec. 8. Subject to the Department's approval of subcontractors pursuant to Article 17 of the Standard Construction Contract, a Contractor may use any subcontractor, union or non-union, as long as the subcontractor signs and agrees to the terms of the PLA.
4. **Q.** Are bidders required to submit Letters of Assent signed by proposed subcontractors with their bid in order to be found responsive?
A. No, bidders do not have to submit signed Letters of Assent from their subcontractors with their bid. Subcontractors, however, will be required to sign the Letter of Assent prior to being approved by the Department.
5. **Q.** May a Contractor or subcontractor use any of its existing employees to perform this work?
A. Generally labor will be referred to the Contractor from the respective signatory local unions. See PLA Article 4. However, Contractors and subcontractors may continue to use up to 12% of their existing, qualifying labor force for this work, in accordance with the terms of PLA Article 4, Section 2B. Certified M/WBEs for which participation goals are set pursuant to NYC Administrative Code §6-129 that are not signatory to any Schedule A CBAs may use their existing employees for the 2nd, 4th, 6th and 8th employee needed on the job if their contracts are valued at or under \$500,000. For contracts valued at above \$500,000 but under \$1,000,000, such certified M/WBEs may use their own employees for the 2nd, 5th and 8th employees needed on the job in accordance with the provisions of PLA Article 4, Section 2C. If additional workers are needed by these M/WBEs, the additional workers will be referred to the Contractor from the signatory local unions subject to the Contractor's right to meet 12% of the additional needs with its existing, qualifying employees.
6. **Q.** Must the City set M/WBE participation goals for the particular project or contract in order for a certified M/WBE to utilize the provisions of PLA Article 4, Section 2C?
A. No. PLA Article 4, Section 2(C) specifies what categories of M/WBEs are eligible to take advantage of this provision (i.e., those M/WBEs for which the City is

authorized to set participation goals under §6-129). For purposes of section 2(C), it is not necessary for the project to be subject to §6-129 or for the City to have actually set participation goals for the particular contract or project. The result is the same where a project receives State funding and therefore is subject to the requirements of Article 15-A of the Executive Law.

7. **Q.** May a Contractor bring in union members from locals that are not signatory unions?
 - A. Referrals will be from the respective signatory locals and/or locals listed in Schedule A of the PLA. Contractors may utilize "traveler provisions" contained in the local collective bargaining agreements (local CBAs) where such provisions exist and/or in accordance with the provisions of PLA Article 4, Section 2.
8. **Q.** Does a non-union employee working under the PLA automatically become a union member?
 - A. No, the non-union employee does not automatically become a union member by working on a project covered by the PLA. Non-union employees working under the PLA are subject to the union security provisions (i.e., union dues/agency shop fees) of the local CBAs while on the project. These employees will be enrolled in the appropriate benefit plans and earn credit toward various union benefit programs except in certain circumstances as set forth in the PLA. See PLA Article 4, Section 6 and Article 11.
9. **Q.** When will the agency shop dues payer affiliate workers become eligible for union benefits?
 - A. Union benefit plans have their own plan documents that determine eligibility and workers will become eligible for certain benefits at different points in time. Contractors who will have agency shop dues payer affiliate workers should speak with the respective union(s) as to benefit eligibility thresholds.
10. **Q.** Are all Contractors and subcontractors working under the PLA, including non-union Contractors and Contractors signatory to collective bargaining agreements with locals other than those that are signatories to the PLA, required to make contributions to designated employee benefit funds?
 - A. Except in certain circumstances, as described in the following paragraph, Contractors and subcontractors working under the PLA will be required to contribute on behalf of all employees covered by the PLA to established jointly trustee employee benefit funds designated in the Schedule A CBAs and required to be paid on public works under any applicable prevailing wage law. See PLA Article 11, Section 2. The Agency may withhold from amounts due the Contractor any amounts required to be paid, but not actually paid into any such fund by the Contractor or a subcontractor. See PLA Article 11, Section 2 D.

Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for their employees working pursuant to Article 4, Section 2 (B) and (C) ("core" employees) who are already covered under their bona fide private benefit plans. Supplemental benefit funds in excess

of the annualized value of the private benefit plans will be paid to workers as additional wages in compliance with Labor Law 220. At the time of contract award, the Contractor shall make available to the contracting Agency a complete set of plan documents for each private benefit plan into which contributions will be made and/or coverage provided. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220. See PLA Article 11, Section 2.

11. Q. What happens if a Contractor or subcontractor fails to make a required payment to a designated employee benefit fund?

A. The PLA sets forth a process for unions to address a contractor or a subcontractor's failure to make required payments. The process includes potentially the direct payment by the City to the benefit fund of monies owed and the corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2.

Upon notification by a union or fringe benefit fund that a Contractor is delinquent in its payment of benefits and a determination by the Agency that the union or fund has submitted appropriate documentation of such delinquency, the Agency will thereafter require the Contractor to submit cancelled checks or other equivalent proof of payment of benefit contributions with certified payroll reports for work covered by this PLA on which the Contractor is engaged.

The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

12. Q. Does signing on to the PLA satisfy the Apprenticeship Requirements established for this bid?

A. Yes. By agreeing to perform the Work subject to the PLA, the bidder demonstrates compliance with the apprenticeship requirements imposed by this Invitation for Bids.

13. Q. Who decides on the number of workers needed?

A. Except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the determination as to the number of employees to be hired and the qualifications therefore and the promotion, transfer, and layoff of its employees. See PLA Article 6, Section 1.

14. Q. May a contractor discharge a union referral for lack of productivity?

A. Again, except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the right to discipline or discharge for just cause its employees. See PLA Article 6, Section 1.

15. Q. May a contractor assign a management person to site?

- A. Yes. Managers are not subject to the provisions of the PLA, so there is no restriction on management and/or other non-trade personnel, as long as such personnel do not perform trade functions. See Article 3, Section 1.
16. Q. Does the PLA provide a standard work day across all the signatory trades?
A. Yes, all signatory trades will work an eight (8) hour day, Monday through Friday with a day shift at straight time as the standard work week. The PLA also permits a Contractor to schedule a four day (within Monday through Friday) work week, ten (10) hours per day at straight time if announced at the commencement of the project. See PLA Article 12, Section 1. This is an example where the terms of the PLA override provisions of the Standard Construction Contract (compare with section 37.2 of the Standard Construction Contract). The standard work week may be reduced to 35 or 37 ½ hours of work in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.
17. Q. Does the PLA create a common holiday schedule for all the signatory trades?
A. Yes, the PLA recognizes nine (9) common holidays, including Veterans Day. See PLA Article 12, Section 4.
18. Q. Does the PLA provide for a standard policy for 'shift work' across all signatory trades?
A. Yes, second and third shifts may be worked with a standard 5% premium pay. In addition, a day shift does not have to be scheduled in order to work the second and third shifts at the 1.05 hourly pay rate. See PLA Article 12, Section 3.
19. Q. May the Contractor schedule overtime work, including work on a weekend?
A. Yes, the PLA permits the Contractor to schedule overtime work, including work on weekends. See PLA Article 12, Sections 2, 3, and 5. To the extent that the Agency's approval is required before a Contractor may schedule or be paid for overtime, that approval is still required notwithstanding the PLA language.
20. Q. Are overtime payments affected by the PLA?
A. Yes, all overtime pay incurred Monday through Saturday will be at time and one half (1 ½). There will be no stacking or pyramiding of overtime pay under any circumstances. See PLA Article 12, Section 2. Sunday and holiday overtime will be paid according to each trade's CBA.
21. Q. Are there special provisions for Saturday work when a day is 'lost' during the week due to weather, power failure or other emergency?
A. Yes, when this occurs the Contractor may schedule Saturday work at weekday rates. See PLA Article 12, Section 5.
22. Q. Does the PLA contain special provisions for the manning of Temporary Services?

A. Yes. Where temporary services are required by specific request of the Agency or construction manager, they shall be provided by the Contractor's existing employees during working hours in which a shift is scheduled for employees of the Contractor. The need for temporary services during non-working hours will be determined by the Agency or construction manager. There will be no stacking of trades on temporary services. See PLA Article 15.

23. Q. What do the workers get paid when work is terminated early in a day due to inclement weather or otherwise cut short of 8 hours?

A. The PLA provides that employees who report to work pursuant to regular schedule and not given work will be paid two hours of straight time. Work terminated early for severe weather or emergency conditions will be paid only for time actually worked. In other instances where work is terminated early, the worker will be paid for a full day. See PLA Article 12, Sections 6 and 8. The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See PLA Article 12, Section 6.

24. Q. Should a local collective bargaining agreement of a signatory union expire during the project will a work stoppage occur on a project subject to the PLA?

A. No. All the signatory unions are bound by the 'no strike' agreement as to the PLA work. Work will continue under the PLA and the otherwise expired local CBA(s) until the new local CBA(s) are negotiated and in effect. See PLA Articles 7 and 19.

25. Q. May a Contractor working under the PLA be subject to a strike or other boycott activity by a signatory union at another site while the Contractor is a signatory to the PLA?

A. Yes. The PLA applies ONLY to work under the PLA and does not regulate labor relations at other sites even if those sites are in close proximity to PLA work.

26. Q. If a Contractor has worked under other PLAs in the New York City area, are the provisions in this PLA generally the same as the others?

A. While Project Labor Agreements often look similar to each other, and particular clauses are often used in multiple agreements, each PLA is a unique document and should be examined accordingly.

27. Q. What happens if a dispute occurs between the Contractor and an employee during the project?

A. The PLA contains a grievance and arbitration process to resolve disputes between the Contractor and the employees. See PLA Article 9.

28. Q. What happens if there is a dispute between locals as to which local gets to provide employees for a particular project or a particular aspect of a project?

A. The PLA provides for jurisdictional disputes to be resolved in accordance with the NY Plan. See PLA Article 10. A copy of the NY Plan is available upon request from the

Department. The PLA provides that work is not to be disrupted or interrupted pending the resolution of any jurisdictional dispute. The work proceeds as assigned by the Contractor until the dispute is resolved. See PLA Article 10, Section 3.

29. Q. Does the 2015 Renovation PLA contain special provisions for JOCS or task order based Contracts?

A. The PLA does not apply to Task Orders or Work Orders that do not exceed \$10,000 issued under JOCS or Requirements Contracts otherwise subject to the PLA. See PLA Article 3, Section 1.

NYC Project Labor Agreements

CONTACT INFORMATION FOR LOCAL UNIONS (Updated May 2016)

BOILER MAKERS LOCAL NO. 5

24 Van Siclen Avenue
Floral Park, NY 11001
Phone: (516) 326-2500
Fax: (516) 326-3435
Business Manager: Steve Ludwigson

BLASTERS, DRILLRUNNERS & MINERS LOCAL NO. 29

43-12 Ditmars Blvd.
Astoria, NY, 11105
Phone: (718) 278-5800
Business Manager: Thomas Russo

BRICKLAYERS LOCAL NO. 1

4 Court Square #1
Long Island City, NY 11101
Phone: (718) 392-0525
Business Manager: Jeramiah Sullivan

CARPENTERS DISTRICT COUNCIL

395 Hudson Street, 9th Fl
New York, New York 10014
Phone: (212) 366-7500
Fax: (212) 675-3140
Business Manager: Joe Geiger
John Sheehy, D.C. Rep.

CEMENT MASONS NO. 780

150-50 14th Rd Suite 4
Whitestone, NY 11357
Phone: (718) 357-3750
Fax: (718) 357-2057
Business Manager: Gino Castingnoli

CONCRETE WORKERS DISTRICT COUNCIL NO. 16

29-18 35th Avenue
Long Island City, NY 11106
Phone: (718) 392-5077
Fax: (718) 392-5087
Business Manager: Alex Castaldi

DERRICKMEN & RIGGERS LOCAL 197

35-53 24th Street
Long Island City, NY 11101
Phone: (718) 361-6534
Fax: (718) 361-6584
Business Manager: William Hayes
Billhayes197@yahoo.com

DRYWALL TAPERS 1974

265 West 14th Street
New York, NY 10011
Phone: (212) 242-8500
Fax: (212) 242-2356
Business Manager: Sal Marsala

ELECTRICAL LOCAL NO. 3

158-11 Harry Van Arsdale, Jr. Avenue
Flushing, NY 11365
Phone: (718) 591-4000
Fax: (718) 380-8998
Business Manager: Chris Erickson
Raymond Melville, Asst. Bus. Mgr.
Construction

ELEVATOR CONSTRUCTORS NO. 1

47-24 27th Avenue
Long Island City, NY 11101
Phone: (718) 767-7004
Fax: (718) 767-6730
Business Manager: Lenny Legotte
llegotte@localoneiuec.com

ENGINEERS LOCAL NO. 14

141-57 Northern Boulevard
Flushing, NY 11354
Phone: (718) 939-0600
Fax: (718) 939-3131
Business Manager: Edwin Christian

ENGINEERS NO. 15, 15A, 15B, 15C, 15D

44-40 11th Street
Long Island City, NY 11101
Phone: (212) 929-5327
Business Manager: Tom Callahan

ENGINEERS NO. 30

16-16 Whitestone Expressway
Whitestone, NY 11357
Phone: (718) 847-8484
Fax: (718) 850-0524
Business Manager: William Lynn

ENGINEERS No. 94

331-337 West 44th Street
New York, NY 10036
Phone: (212) 245-7040
Fax: (212) 245-7886
Business Manager: Kuba Brown
kubabrown@local94.com

GLAZIERS NO. 1087

45 West 14th Street
New York, NY 10011
Phone: (212) 924-5200
Fax: (212) 255-1151
Business Manager: Steve Birmingham

**HEAT & FROST INSULATORS
AND ALLIED WORKERS
LOCAL UNION NO. 12**

35-53 24th Street
Long Island City, NY 11101
Phone: (718) 784-3456
Fax: (718) 784-8357
Business Manager: Matty Aracich
matty@insulatorslocal12.com

**HEAT & FROST INSULATORS
LOCAL UNION NO. 12A**

1536 127th Street
College Point, NY 11356
Phone: (718) 886-7226
Business Manager: Jaime Soto

IRON WORKERS DISTRICT COUNCIL

22 West 46th Street
New York, NY 10036
Phone: (212) 302-1868
Business Manager: James Mahoney
jmahoney@iwintl.org

IRON WORKERS NO. 40 (Manhattan, The Bronx & Staten Island)

451 Park Avenue South
New York, NY 10016
Phone: (212) 889-1320
Fax: (212) 779-3267
Business Manager: Bob Walsh

IRON WORKERS NO. 361 (Brooklyn & Queens)

89-19 97th Avenue
Ozone Park, NY 11416
Phone: (718) 322-1016/17
Fax: (718) 322-1053
Business Manager: Matthew Chartrand

**LABORERS LOCAL NO. 78
ASBESTOS & LEAD ABATEMENT**

30 Cliff Street
New York, New York 10038
Phone: (212) 227-4803
Fax: (212) 406-1800
Business Manager: Edison Severino

**LABORERS, CONSTRUCTION AND
GENERAL BUILDING NO. 79**

520 8th Avenue
New York, NY 10018
Phone: (212) 465-7900
Fax: (212) 465-7903
Business Manager: Michael Prohaska

LABORERS NO. 731

34-11 35th Avenue
Astoria, NY 11106
(718) 706-0720
Business Manager: Joseph D'Amato

**LATHERS METAL
LOCAL NO. 46**

1322 Third Avenue
New York, NY 10021
Phone: (212) 737-0500
Fax: (212) 249-1226
Business Manager: Terrance Moore

MASON TENDERS DIST. COUNCIL

520 8th Avenue
New York, NY 10018
Phone: (212) 452-9400
Fax: (212) 452-9499
Business Manager: Robert Bonanza

METAL POLISHERS

LOCAL UNION NO. 8A-28A

36-18 33rd Street 2nd Fl.
Long Island City, NY 11106
Phone: (718) 361-1770
Fax: (718) 361-1934
Business Manager: Hector Lopez

MILLWRIGHT AND MACHINERY

ERECTORS LOCAL NO. 740

89-07 Atlantic Avenue
Woodhaven, NY 11412
Phone: (718) 849-3636
Fax: (718) 849-0070
Business Manager: Joseph Geiger

ORNAMENTAL IRON WORKERS

NO. 580

501 West 42nd Street
New York, NY 10036
Phone: (212) 594-1662
Fax: (212) 564-2748
Business Manager: Pete Myers

PAINTERS DISTRICT

COUNCIL NO. 9

45 West 14th Street
New York, NY 10011
Phone: (212) 255-2950
Fax: (212) 255-1151
Business Manager: Joseph Azzopardi

PAINTERS STRUCTURAL STEEL

NO. 806

40 West 27th Street
New York, New York 10001
Phone: (212) 447-1838/0149
Fax: (212) 545-8386
Business Manager: Angelo Serse

**PAVERS & ROAD BUILDERS
DISTRICT COUNCIL NO. 1**

136-25 37th Avenue, Suite 502
Flushing, NY 11354
Phone: (718) 886-3310
Business Manager: Keith Lozcalzo

PLASTERS LOCAL UNION NO. 262

2241 Conner Street
Bronx, NY 10466
Phone: (718) 547-5440
Fax: (718) 547-5435
Business Manager: Michael Hubler

PLUMBERS NO. 1

158-29 Cross Bay Boulevard
Howard Beach, NY 11414
Phone: (718) 738-7500
Fax: (718) 835-0896
Business Manager: John Murphy

**PRIVATE SANITATION
LOCAL NO. 813**

45-18 Court Square, Suite 600
Long Island City, NY 11101
Phone: (718) 937-7010 ext. 244
Fax: (718) 937-7003
Business Manager: Sean Campbell

ROOFERS & WATERPROOFERS NO. 8

12-11 43rd Avenue
Long Island City, NY 11101
Phone: (718) 361-1169
Fax (718) 361-8330
Business Manager: Nick Siciliano

**SHEET METAL WORKERS
LOCAL NO. 28**

MANHATTAN OFFICE
500 Greenwich Street
New York, NY 10013
Phone: (212) 941-7700
Fax: (212) 226-0304
Business Manager: Kevin Connors

SHEET METAL WORKERS

LOCAL 137

21-42 44th Drive

Long Island City, NY 11101

Phone: (718) 937-4514

Fax: (718) 937-4113

Business Manager: Dante Dano

STEAMFITTERS LOCAL UNION

NO. 638

32-32 48th Avenue

Long Island City, NY 11101

Phone: (718) 392-3420

Fax: (718) 784-7285

Business Manager: Bob Bartels

TEAMSTERS LOCAL UNION 282

2500 Marcus Avenue

Lake Success, NY 11042

Phone: (516) 488-2822

Fax: (516) 488-4895

Business Manager: Tom Gesauldi

TEAMSTERS LOCAL UNION 814

21-42 44th Drive

Long Island City, NY 11101

Phone: (718) 609-6407

Fax: (718) 361-9610

Business Manager: Jason Ide

TILE, MARBLE & TERRAZO B.A.C.

LOCAL UNION 7

45-34 Court Square

Long Island City, NY 11101

Phone: (718) 786-7648

Fax: (718) 472-2370

Business Manager: Tom Lane

TIMBERMEN & DOCKBUILDERS LOCAL 1556

395 Hudson Street

New York, NY 10014

Phone: (212) 242-1320

Business Manager: Joseph Geiger

NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES
PLA

PROJECT LABOR AGREEMENT

COVERING SPECIFIED

**RENOVATION & REHABILITATION
OF CITY OWNED BUILDINGS AND STRUCTURES**

2015 - 2018

NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES
PLA

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**PROJECT LABOR AGREEMENT COVERING SPECIFIED
RENOVATION & REHABILITATION OF NEW YORK CITY OWNED
FACILITIES & STRUCTURES**

ARTICLE 1 - PREAMBLE

WHEREAS, the City of New York desires to provide for the cost efficient, safe, quality, and timely completion of certain rehabilitation and renovation work ("Program Work," as defined in Article 3) in a manner designed to afford the lowest costs to the Agencies covered by this Agreement, and the Public it represents, and the advancement of permissible statutory objectives;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) providing a mechanism for responding to the unique construction needs associated with this Program Work and achieving the most cost effective means of construction, including direct labor cost savings, by the Building and Construction Trades Council of Greater New York and Vicinity and the signatory Local Unions and their members waiving various shift and other hourly premiums and other work and pay practices which would otherwise apply to Program Work;

(2) expediting the construction process and otherwise minimizing the disruption to the covered Agencies' ongoing operations at the facilities that are the subject of the Agreement;

(3) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes, reducing jobsite friction on common situs worksites, and promoting labor harmony and peace for the duration of the Program Work;

(4) standardizing the terms and conditions governing the employment of labor on Program Work;

(5) permitting wide flexibility in work scheduling and shift hours and times to allow maximum work to be done during off hours yet at affordable pay rates;

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- (6) permitting adjustments to work rules and staffing requirements from those which otherwise might obtain;
- (7) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
- (8) ensuring a reliable source of skilled and experienced labor; and
- (9) securing applicable New York State Labor Law exemptions.

WHEREAS, the Building and Construction Trades Council of Greater New York and Vicinity, its participating affiliated Local Unions and their members, desire to assist the City in meeting these operational needs and objectives as well as to provide for stability, security and work opportunities which are afforded by this Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Program Work safety conditions for both workers and the community in the project area.

NOW, THEREFORE, the Parties enter into this Agreement:

SECTION 1. PARTIES TO THE AGREEMENT

This is a Project Labor Agreement (“Agreement”) entered into by the City of New York, on behalf of itself and the Agencies covered herein, including in their capacity as construction manager of covered projects and/or on behalf of any third party construction manager which may be utilized, and the Building and Construction Trades Council of Greater New York and Vicinity (“Council”) (on behalf of itself) and the signatory affiliated Local Union’s (“Unions” or “Local Unions”). The Council and each signatory Local Union hereby warrants and represents that it has been duly authorized to enter into this Agreement.

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ARTICLE 2 - GENERAL CONDITIONS

SECTION 1. DEFINITIONS

Throughout this Agreement, the various Union parties including the Building and Construction Trades Council of Greater New York and Vicinity and its participating affiliated Local Unions, are referred to singularly and collectively as "Union(s)" or "Local Unions"; the term "Contractor(s)" shall include any Construction Manager, General Contractor and all other contractors, and subcontractors of all tiers engaged in Program Work within the scope of this Agreement as defined in Article 3; "Agency" means the following New York City agencies: the Department for the Aging (DFTA), Administration for Children's Services (ACS), Department of Citywide Administrative Services (DCAS), Department of Correction (DOC), Department of Design and Construction (DDC), Fire Department (FDNY), Department of Homeless Services (DHS), Human Resources Administration (HRA), Department of Health and Mental Hygiene (DOHMH), Department of Parks and Recreation (DPR), Police Department (NYPD); Department of Sanitation (DSNY); the New York City Agency that awards a particular contract subject to this Agreement may be referred to hereafter as the "Agency"; when an Agency acts as Construction Manager, unless otherwise provided, it has the rights and obligations of a "Construction Manager" in addition to the rights and obligations of an Agency; the Building and Construction Trades Council of Greater New York and Vicinity is referred to as the ["BCTC" or "Council"]; and the work covered by this Agreement (as defined in Article 3) is referred to as "Program Work."

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SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless each of the following conditions are met: the Agreement is executed by (1) the Council, on behalf of itself, (2) the participating affiliated Local Unions; and (3) the mayor of the City of New York or his designee.

SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

This Agreement shall be binding on all participating Unions and their affiliates, the Construction Manager (in its capacity as such) and all Contractors of all tiers performing Program Work, as defined in Article 3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their subcontractors, of all tiers, become signatory and bound by this Agreement with respect to that subcontracted work falling within the scope of Article 3 and all Contractors (including subcontractors) performing Program Work shall be required to sign a "Letter of Assent" in the form annexed hereto as Exhibit "A". This Agreement shall be administered by the applicable Agency or a Construction Manager or such other designee as may be named by the Agency or Construction Manager, on behalf of all Contractors.

SECTION 4. SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A, represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to this Program Work, in whole or in part, except that Program Work which falls within the jurisdiction of the Operating

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Engineers Locals 14 and 15 will be performed under the terms and conditions set out in the Schedule A agreements of Operating Engineers Locals 14 and 15. The Collective Bargaining Agreements of the affiliated local unions that cover the particular type of construction work to be performed by the contractor, and as set forth in the Schedule A list of Agreements, shall be deemed the Schedule A Collective Bargaining Agreements ("Schedule A CBA") under this Agreement. Where association and independent Collective Bargaining Agreements for a particular type of construction work are both set forth in Schedule A, association members shall treat the applicable association agreement as the Schedule A CBA and independent contractors shall treat the applicable independent agreement as the Schedule A CBA. Subject to the foregoing, where a subject covered by the provisions of this Agreement is also covered by a Schedule A Collective Bargaining Agreement, the provisions of this Agreement shall prevail. It is further understood that no Contractor shall be required to sign any other agreement as a condition of performing Program Work. No practice, understanding or agreement between a Contractor and a Local Union which is not set forth in this Agreement shall be binding on this Program Work unless endorsed in writing by the Construction Manager or such other designee as may be designated by the Agency.

SECTION 5. LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Construction Manager and any Contractor shall not be liable for any violations of this Agreement by any other Contractor; and the

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Council and Local Unions shall not be liable for any violations of this Agreement by any other Union.

SECTION 6. THE AGENCY

The Agency (or Construction Manager where applicable) shall require in its bid specifications for all Program Work within the scope of Article 3 that all successful bidders, and their subcontractors of all tiers, become bound by, and signatory to, this Agreement. The Agency (or Construction Manager) shall not be liable for any violation of this Agreement by any Contractor. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the Agency or Construction Manager in determining which Contractors shall be awarded contracts for Program Work. It is further understood that the Agency or Construction Manager has sole discretion at any time to terminate, delay or suspend the Program Work, in whole or part, on any Program.

**SECTION 7. AVAILABILITY AND APPLICABILITY
TO ALL SUCCESSFUL BIDDERS**

The Unions agree that this Agreement will be made available to, and will fully apply to, any successful bidder for (or subcontractor of) Program Work who becomes signatory thereto, without regard to whether that successful bidder (or subcontractor) performs work at other sites on either a union or non-union basis and without regard to whether employees of such successful bidder (or subcontractor) are, or are not, members of any unions. This Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Program Work.

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SECTION 8. SUBCONTRACTING

Contractors will subcontract Program Work only to a person, firm or corporation who is or agrees to become party to this Agreement.

ARTICLE 3-SCOPE OF THE AGREEMENT

SECTION 1. WORK COVERED

Program Work shall be limited to designated rehabilitation and renovation construction contracts bid and let by an Agency (or its Construction Manager where applicable) after the effective date of this Agreement with respect to rehabilitation and renovation work performed for an Agency on City-owned property under contracts let prior to December 31, 2018. Subject to the foregoing, and the exclusions below, such Program Work shall mean any and all contracts that predominantly involve the renovation, repair, alteration, rehabilitation or expansion of an existing City-owned building or structure within the five boroughs of New York City. Examples of Program Work include, but are not limited to, the renovation, repair, alteration and rehabilitation of an existing temporary or permanent structure, or an expansion of above ground structures located in the City on a City-owned building. This Program Work shall also include JOCS contracts, demolition work, site work, asbestos and lead abatement, painting services, carpentry services, and carpet removal and installation, to the extent incidental to such building rehabilitation of City-owned buildings or structures.

It is understood that, except where the City specifically applies this Project Labor Agreement to such work in its bid documents, Program Work does not include, and this Project Labor Agreement shall not apply to, any other work, including:

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1. Contracts let and work performed in connection with projects carried over, recycled from, or performed under bids or rebids relating to work that were bid prior to the effective date of this Agreement or after December 31, 2018;
2. Contracts procured on an emergency basis;
3. Contracts that do not exceed \$250,000;
4. Contracts for work on streets and bridges and for the closing or environmental remediation of landfills;
5. Contracts with not-for-profit corporations where the City is not awarding or performing the work performed for that entity;
6. Contracts with governmental entities where the City is not awarding or performing the work performed for that entity;
7. Contracts with electric utilities, gas utilities, telephone companies, and railroads, except that it is understood and agreed that these entities may only install their work to a demarcation point, e.g. a telephone closet or utility vault, the location of which is determined prior to construction and employees of such entities shall not be used to replace employees performing Program Work pursuant to this agreement;
8. Contracts for installation of information technology that are not otherwise Program Work;
9. Task Orders or Work Orders issued under JOCS or Requirements Contracts that do not exceed \$10,000, and JOCS or Requirements Contracts where the monetary value of such contracts predominantly involves such Task Orders or Work

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Orders; and

10. Contracts that do not exceed \$1 Million that are awarded pursuant to prequalified lists (PQLs) established by City agencies where entry on to the PQL is restricted to MWBEs, or a combination of MWBEs together with joint ventures which include at least one MWBE, or contractors who agree to subcontract at least 50% of the contract to MWBEs.

SECTION 2. TIME LIMITATIONS

In addition to falling within the scope of Article 3, Section 1, to be covered by this Agreement Program Work must be (1) advertised and let for bid after the effective date of this Agreement, and (2) let for bid prior to December 31, 2018, the expiration date of this Agreement. It is understood that this Agreement, together with all of its provisions, shall remain in effect for all such Program Work until completion, even if not completed by the expiration date of the Agreement. If Program Work otherwise falling within the scope of Article 3, Section 1 is not let for bid by the expiration date of this Agreement, this Agreement may be extended to that work by mutual agreement of the parties.

SECTION 3. EXCLUDED EMPLOYEES

The following persons are not subject to the provisions of this Agreement, even though performing Program Work:

A. Superintendents, supervisors (excluding general and forepersons specifically covered by a craft's Schedule A), engineers, professional engineers and/or licensed architects engaged in inspection and testing, quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians,

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non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of the Agency, New York City, or any other municipal or State agency, authority or entity, or employees of any other public employer, even though working on the Program site while covered Program Work is underway;

C. Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of project components, materials, equipment or machinery or involved in deliveries to and from the Program site, except to the extent they are lawfully included in the bargaining unit of a Schedule A agreement;

D. Employees of the Construction Manager (except that in the event the Agency engages a Contractor to serve as Construction Manager, then those employees of the Construction Manager performing manual, on site construction labor will be covered by this Agreement);

E. Employees engaged in on-site equipment warranty work unless employees are already working on the site and are certified to perform warranty work;

F. Employees engaged in geophysical testing other than boring for core samples;

G. Employees engaged in laboratory, specialty testing, or inspections, pursuant to a professional services agreement between the Agency, or any of the Agency's

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other professional consultants, and such laboratory, testing, inspection or surveying firm;
and

H. Employees engaged in on-site maintenance of installed equipment or systems which maintenance is awarded as part of a contract that includes Program Work but which maintenance occurs after installation of such equipment or system and is not directly related to construction services.

SECTION 4. NON-APPLICATION TO CERTAIN ENTITIES

This Agreement shall not apply to those parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor which do not perform Program Work. It is agreed that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among the Agency (including in its capacity as Construction Manager) or any Contractor. The Agreement shall further not apply to any New York City or other municipal or State agency, authority, or entity other than a listed Agency and nothing contained herein shall be construed to prohibit or restrict the Agency or its employees, or any State, New York City or other municipal or State authority, agency or entity and its employees, from performing on or off-site work related to Program Work.

As the contracts involving Program Work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the Agency (or Construction Manager) for performance under the terms of this Agreement.

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ARTICLE 4- UNION RECOGNITION AND EMPLOYMENT

SECTION 1. PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all employees who are performing on-site Program Work, with respect to that work.

SECTION 2. UNION REFERRAL

A. The Contractors agree to employ and hire craft employees for Program Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions area collective bargaining agreements. Notwithstanding this, Contractors shall have sole right to determine the competency of all referrals; to determine the number of employees required; to select employees for layoff (subject to Article 5, Section 3); and the sole right to reject any applicant referred by a Local Union, subject to the show-up payments. In the event that a Local Union is unable to fill any request for qualified employees within a 48 hour period after such requisition is made by a Contractor (Saturdays, Sundays and holidays excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Program Work within its jurisdiction from any source other than referral by the Union.

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B. A Contractor may request by name, and the Local will honor, referral of persons who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.

No more than twelve per centum (12%) of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions above. Under this provision, name referrals begin with the eighth employee needed and continue on that same basis.

C. Notwithstanding Section 2(B), above, certified MWBE contractors for which participation goals are set forth in New York City Administrative Code §6-129, that are not signatory to any Schedule A CBAs, with contracts valued at or under five hundred thousand (\$500,000), may request by name, and the Local will honor, referral of the second (2nd), fourth (4th), sixth (6th), and eighth (8th) employee, who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 work days prior to the contract award.

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For such contracts valued at above \$500,000 but less than \$1 million, the Local will honor referrals by name of the second (2nd), fifth (5th), and eighth (8th) employee subject to the foregoing requirements. In both cases, name referrals will thereafter be in accordance with Section 2(B), above.

D. Where a certified MWBE Contractor voluntarily enters into a Collective Bargaining Agreement ("CBA") with a BCTC Union, the employees of such Contractor at the time the CBA is executed shall be allowed to join the Union for the applicable trade subject to satisfying the Union's basic standards of proficiency for admission.

SECTION 3. NON-DISCRIMINATION IN REFERRALS

The Council represents that each Local Union hiring hall and referral system will be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

SECTION 4: MINORITY, FEMALE, LOCAL AND SECTION 3 REFERRALS

In the event a Local Union either fails, or is unable to refer qualified minority or female applicants in percentages equaling the workforce participation goals adopted by the City and set forth in the Agency's (or, if applicable, Construction Manager's) bid

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specifications, within 48 hours of the request for same, the Contractor may employ qualified minority or female applicants from any other available source.

In the event that the City or a City agency determines to adopt local workforce participation goals to be set forth in an Agency's (or, if applicable Construction Manager's) bid specifications, the City and BCTC will work together to seek agreement on appropriate goals to be set forth in applicable bid documents and to be subject to the provisions of this section.

For any Program Work that may become subject to requirements under Section 3 of the Housing and Urban Development Act of 1968, as amended by the Housing and Community Development Act of 1992, and any rules, including new or revised rules, that may be published thereunder, the Local Unions will acknowledge the Section 3 obligations of the Construction Manager or Contractor, as applicable, and agree to negotiate a method to implement this Article in a manner that would allow the Construction Manager or Contractor to meet its Section 3 obligations to the greatest extent feasible, and to post any required notices in the manner required by Section 3. The parties also acknowledge that the Construction Manager and Contractor may also fulfill its Section 3 requirements on Program Work by promoting opportunities for excluded employees, as defined by Article 3, Section 3 of this Agreement, on Program Work and, to the extent permitted by Section 3, by promoting opportunities for craft and other employees on non-Program Work.

SECTION 5. CROSS AND QUALIFIED REFERRALS

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions

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will exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

SECTION 6. UNION DUES

All employees covered by this Agreement shall be subject to the union security provisions contained in the applicable Schedule A local agreements, as amended from time to time, but only for the period of time during which they are performing on-site Program Work and only to the extent of tendering payment of the applicable union dues and assessments uniformly required for union membership in the Local Unions which represent the craft in which the employee is performing Program Work. No employee shall be discriminated against at any Program Work site because of the employee's union membership or lack thereof. In the case of unaffiliated employees, the dues payment will be received by the Local Unions as an agency shop fee.

SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor except where otherwise provided by specific provisions of an applicable Schedule A, and provided that all craft forepersons shall be experienced and qualified journeypersons in their trade as determined by the appropriate Local Union. All forepersons shall take orders exclusively from the designated Contractor representatives. Craft forepersons shall be designated as working forepersons at the request of the Contractor, except when an existing local Collective Bargaining Agreement prohibits a foreperson from working when the craft persons he is leading exceed a specified number.

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SECTION 8. ON CALL REPAIR REFERRALS

A. When an Agency awards a contract that requires the Contractor to have employees available on short notice to make time sensitive repairs with such contract requiring the Contractor to respond within as little as two hours from the time the Contractor is contacted by the Agency ("On Call, Repair Contract"), the Contractor will, within ten (10) days of being awarded an On Call, Repair Contract subject to this Agreement, notify the appropriate affiliated Union that it has been awarded such a contract and immediately enter into good faith negotiations with such relevant affiliated Union to establish a procedure to receive time sensitive referrals from such affiliated Union(s).

B. In the event the Contractor and the relevant affiliated Union(s) are unable to negotiate a specific, mutually agreeable procedure for on call repair referral procedure within twenty (20) days of commencement of negotiations or prior to commencement of performance of the contract, whichever is earlier, the Contractor and the relevant affiliated Unions will follow the following procedure:

1. Upon notification by a Contractor that it has been awarded an On Call Repair Contract pursuant to paragraph A above, each relevant affiliate Union shall provide the Contractor with the name and twenty four (24) hour contact information of an On Call, Repair Contract contact person for urgent on call repair referrals.

2. The relevant affiliated Unions shall prepare a list of individuals eligible and prepared for referral on an immediate basis to respond to the on call repair contractor. Such list shall be provided to and in the possession of the designated on call repair contact person for the affiliated Union and available for immediate reference.

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3. Individuals on such list must be able to comply with the Contractor's response time pursuant to contract requirements.

4. The Union's On Call, Repair Contract contact person shall respond to a contractor's request for referrals within a reasonable time of the request so that compliance with the contract shall be possible.

C. In the event that the Contractor makes a request for an on call referral that is compliant with this procedure and a Union is not able to respond to the request, that Union will be deemed to have waived the forty-eight (48) hour referral rule contained in Section 2 above and the Contractor may employ qualified applicants from any other available source that can meet contract requirements for that time sensitive on call repair work only; provided, however, that any work related to the repair work that is not of a time sensitive nature under the contract shall comply with Section 2. If a Union fails to timely refer a worker and the Contractor employs other workers, the Contractor will e-mail the agency within 72 hours and the agency will forward that e-mail to the designated Labor Management Committee contacts.

ARTICLE 5- UNION REPRESENTATION

SECTION 1. LOCAL UNION REPRESENTATIVE

Each Local Union representing on-site employees shall be entitled to designate in writing (copy to Contractor involved and Construction Manager) one representative, and/or the Business Manager, who shall be afforded access to the Program Work site during such time as bargaining unit work is occurring and subject to otherwise applicable policies pertaining to visitors to the site.

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SECTION 2. STEWARDS

A. Each Affiliated Union shall have the sole discretion to designate any journey person as a Steward and an alternate Steward. The Union shall notify the Owner and/or Construction Manager as well as the Contractor of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. All Stewards shall be working Stewards.

B. In addition to their work as an employee, the Steward shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor. Each Steward shall be concerned with the employees of the Steward's trade and, if applicable, subcontractors of their Contractor, but not with the employees of any other trade Contractor. No Contractor shall discriminate against the Steward in the proper performance of Union duties.

C. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

SECTION 3. LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A provision, such provision shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required.

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In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

ARTICLE 6- MANAGEMENT'S RIGHTS

SECTION 1. RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to, the right to: direct the work force, including determination as to the number of employees to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; require compliance with the directives of the Agency including standard restrictions related to security and access to the site that are equally applicable to Agency employees, guests, or vendors; or the discipline or discharge for just cause of its employees; assign and schedule work; promulgate reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work; and, the requirement, timing and number of employees to be utilized for overtime work. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual, as determined by the Contractor, Agency and/or Construction Manager and/or joint working efforts with other employees shall be permitted or observed.

SECTION 2. MATERIALS, METHODS & EQUIPMENT

There shall be no limitation or restriction upon the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast,

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pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source; provided, however, that where there is a Schedule "A" that includes a lawful union standards and practices clauses, then such clause as set forth in Schedule A Agreements will be complied with, unless there is a lawful Agency specification (or specification issued by a Construction Manager which would be lawful if issued by the Agency directly) that would specifically limit or restrict the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices, and which would prevent compliance with such Schedule A clause. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor. There shall be no restrictions as to work which is performed off-site for Program Work.

ARTICLE 7- WORK STOPPAGES AND LOCKOUTS

SECTION 1. NO STRIKES-NO LOCK OUT

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at the Program Work site for any reason by any Union or employee against any Contractor or employer. There

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shall be no other Union, or concerted or employee activity which disrupts or interferes with the operation of the Program Work or the objectives of the Agency at any Program Work site. In addition, failure of any Union or employee to cross any picket line established by any Union, signatory or non-signatory to this Agreement, or the picket or demonstration line of any other organization, at or in proximity to a Program Work site where the failure to cross disrupts or interferes with the operation of Program Work is a violation of this Article. Should any employees breach this provision, the Unions will use their best efforts to try to immediately end that breach and return all employees to work. There shall be no lockout at a Program Work site by any signatory Contractor, Agency or Construction Manager.

SECTION 2. DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 1. above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 days.

SECTION 3. NOTIFICATION

If a Contractor contends that any Union has violated this Article, it will notify the Local Union involved advising of such fact, with copies of the notification to the Council. The Local Union shall instruct and order, the Council shall request, and each shall otherwise use their best efforts to cause, the employees (and where necessary the Council shall use its best efforts to cause the Local Union), to immediately cease and desist from any violation of this Article. If the Council complies with these obligations it shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union

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and its members will not be liable for any unauthorized acts of the Council. Failure of a Contractor or the Construction Manager to give any notification set forth in this Article shall not excuse any violation of Section 1 of this Article.

SECTION 4. EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson or Richard Adelman; who shall alternate (beginning with Arbitrator J.J. Pierson) as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next Arbitrator on the list shall be called. Copies of such notification will be simultaneously sent to the alleged violator and Council.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the Local Union involved, the Council and the Construction Manager, hold a hearing within 48 hours of receipt of the notice invoking the procedure if it is contended that the violation still exists. The hearing will not, however, be scheduled for less than 24 hours after the notice required by Section 3, above.

C. All notices pursuant to this Article may be provided by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the Arbitrator, Contractor, Construction Manager and Local Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side

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to present their case, and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section I, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any.) The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. The Agency and Construction Manager (or such other designee of the Agency) may participate in full in all proceedings under this Article.

F. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union or Contractor involved, and the Construction Manager.

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

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H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

SECTION 1. SUBJECTS

The Program Labor Management Committee will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interests; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review efforts to meet applicable participation goals for MWBEs and workforce participation goals for minority and female employees.

SECTION 2. COMPOSITION

The Committee shall be jointly chaired by a designee of the Agency and the President of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The parties may mutually designate an

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MWBE representative to participate in appropriate Committee discussions. The Committee may conduct business through mutually agreed upon sub-committees.

ARTICLE 9- GRIEVANCE & ARBITRATION PROCEDURE

SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below, provided, in all cases, that the question, dispute or claim arose during the term of this Agreement. Grievances shall include the City contract number and the Program Work address; such information is posted at the Program Work Site if already commenced, and is available in the City Record and Notice to Proceed for projects not already commenced.

Grievances as to whether a scope of work is included or excluded from this Agreement shall be submitted to the Labor Management Committee (LMC) in the first instance rather than Step 1 below. To be timely, such notice must be given no later than ten days prior to a bid opening if the grievance is challenging a determination by an Agency that the contract is not subject to this Agreement. For other grievances as to contractor scope of work issues, notice of such challenges shall be submitted to the LMC within 7 calendar days after the act, occurrence or event giving rise to the grievance. If the scope of work grievance is not resolved within 21 days of its submission to the LMC, then the grievance may proceed directly to Step 3 below.

Step 1:

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(a) When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site representative of the involved Contractor and the Construction Manager. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Construction Manager (or designee) as creating a precedent.

(b) Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

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A Step 2 grievance shall be filed with the Agency, the BCTC, the Contractor, and, if the grievance is against a subcontractor, the subcontractor. The Business Manager or designee of the involved Local Union, together with representatives of the involved Contractor, Council, the Construction Manager (or designee), and, if the grievance is against a subcontractor, the subcontractor, shall meet in Step 2 within 7 calendar days of service of the written grievance to arrive at a satisfactory settlement. The BCTC shall schedule the Step 2 meeting.

Step 3:

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Construction Manager or designee) to the BCTC. In the event the matter is not resolved at Step 2, either J.J. Pierson or Richard Adelman, who shall act, alternately (beginning with Arbitrator J.J. Pierson), as the Arbitrator under this procedure, shall be designated at the Step 2 hearing and the BCTC will notify the arbitrator of his designation. After such notification by the BCTC, the local demanding arbitration shall within a reasonable time request the arbitrator to schedule the matter for an arbitration hearing date. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

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(b) Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Construction Manager (or designee), involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

SECTION 2. LIMITATION AS TO RETROACTIVITY

No arbitration decision or award, with the exception of those related to compliance with requirements to pay prevailing wages and supplements in accordance with federal or State law, may provide retroactivity of any kind exceeding 60 calendar days prior to the date of service of the written grievance on the Construction Manager and the involved Contractor or Local Union.

**SECTION 3. PARTICIPATION BY AGENCY AND/OR CONSTRUCTION
MANAGER**

The Agency and Construction Manager (or such other designee of the Agency) shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

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ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 1. NO DISRUPTIONS

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

SECTION 2. ASSIGNMENT

All Program Work assignments shall be made by the Contractor to unions affiliated with the BCTC consistent with the New York Plan for the Settlement of Jurisdictional Disputes ("New York Plan") and its Greenbook decisions, if any. Where there are no applicable Greenbook decisions, assignments shall be made in accordance with the provisions of the New York Plan and local industry practice.

SECTION 3. NO INTERFERENCE WITH WORK

There shall be no interference or interruption of any kind with the Program Work while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award.

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ARTICLE 11 - WAGES AND BENEFITS

SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the hourly wage rates applicable for those classifications as required by the applicable prevailing wage laws.

SECTION 2. EMPLOYEE BENEFITS

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trustee employee benefit funds designated in the applicable Collective Bargaining Agreements in Schedule A (in the appropriate Schedule A amounts), provided that such benefits are required to be paid on public works under any applicable prevailing wage law. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if similarly required under applicable prevailing wage law. Contractors, not otherwise contractually bound to do so, shall not be required to contribute to benefits, trusts or plans of any kind which are not required by the prevailing wage law provided, however, that this provision does not relieve Contractors signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA.

B. 1. Notwithstanding Section 2 (A) above, and subject to 2 (B)(2) below, Contractors who designate employees pursuant to Article 4, Section 2 (B) and (C) ("core" employees) that are not signatory to a Schedule A Agreement and who maintain bona fide private benefit plans that satisfy the requirements of Section 220 of the Labor Law, may

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satisfy the above benefit obligation with respect to those employees by providing those employees with coverage under their private benefit plans (to the extent consistent with Section 220). The total benefit payments to be made on behalf of each such employee must be equal to the total Section 220 supplement amount and any shortfall must be paid by cash supplement to the employee.

2. A contractor that will satisfy its Section 220 obligations in accordance with subsection 2(B)(1) above shall make available to the Agency at the time of contract award a complete set of plan documents for each non-Schedule A benefit plan into which contributions will be made and/or coverage provided pursuant to the provisions of Section 2(B)(1) above. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220.

3. The City shall verify that the alternate benefit plan(s), together with any cash supplement to the employee, is compliant with Section 220 prior to awarding the Contractor a contract covered by this Agreement. In the event the Contractor's alternate benefit plan(s), together with any cash supplement to the employee, is determined to be compliant with Section 220 and will be utilized by the Contractor on behalf of Article 4, Section 2(B) and (C) core employees, the Local Unions have no duty to enforce the Contractor's obligations on the alternate benefit plan(s) as they are not party to the alternate plan(s) or privy to the terms and conditions of the plan obligations. In the event the City determines the alternate benefit plan(s), together with any cash supplement to the employee, is not compliant with Section 220, the Contractor may, upon executing a Letter

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of Assent, satisfy its obligations for all employees, including core employees, by contributing to the Schedule A benefit plans in accordance with the terms of the Schedule A Agreements.

C. The Contractors agree to be bound by the written terms of the legally established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to Program Work done under this Agreement and only for those employees to whom this Agreement requires such benefit payments.

D. 1. To the extent consistent with New York City's Procurement Policy Board Rules with respect to prompt payment, as published at www.nyc.gov/ppb, §4-06(e), and in consideration of the unions' waiver of their rights to withhold labor from a contractor or subcontractor delinquent in the payment of fringe benefits contributions ("Delinquent Contractor"); the Agency agrees that where any such union and/or fringe benefit fund shall notify the Agency, the General Contractor, and the Delinquent Contractor in writing with back-up documentation that the Delinquent Contractor has failed to make fringe benefit contributions to it as provided herein and the Delinquent Contractor shall fail, within ten (10) calendar days after receipt of such notice, to furnish either proof of such payment or notice that the amount claimed by the union and/or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by

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the Delinquent Contractor which the union or fringe benefit fund claims to be due it, and shall remit the amount when and so withheld to the fringe benefit fund and deduct such payment from the amounts then otherwise due and payable to the General Contractor, which payment shall, as between the General Contractor and the Agency, be deemed a payment by the Agency to the General Contractor; provided however, that in any month, such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. The union or its employee benefit funds shall include in its notification of delinquent payment of fringe benefits only such amount it asserts the Delinquent Contractor failed to pay on the specific project against which the claim is made and the union or its employee benefit funds may not include in such notification any amount such Delinquent Contractor may have failed to pay on any other City or non-City project.

2. In addition, where a union or employee benefit fund gives notice to the City that a Contractor is Delinquent as defined in subsection 2(D)(1) above and the City determines that the notice includes appropriate back-up documentation that the Contractor is delinquent, the City will promptly, but not later than twenty (20) days after receipt of the notice, provide a copy of said notice to City Agencies. In the event the City determines there is insufficient back-up documentation, it will notify the appropriate union and/or fringe benefit fund promptly, but not later than twenty (20) days after receipt of the Delinquency Notice, and shall include notice of what additional documentation is requested. Any determination by the City that there is insufficient back-up must be reasonable. This provision is intended to enhance compliance with the prevailing wage

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law and the PLA with respect to the payment of fringe benefits, and is not intended as a substitute for the resolution of a disputed claim pursuant to any applicable law or agreement.

The City and the relevant Agency(s) will thereafter require the Delinquent Contractor to provide cancelled checks or other equivalent proof of payment of benefit contributions that have come due, to be submitted with certified payroll reports for all Program Work covered by this Agreement on which the Delinquent Contractor is engaged, for at least a one-year period or such earlier period if the Contractor is ultimately determined not be a Delinquent Contractor. Such proof of payment when required is a condition of payment of the Delinquent Contractor's invoices by any entity, including, but not limited to, the City, the relevant Agency(s), Construction Manager, General Contractor, the prime or higher level subcontractor, as is appropriate under the Delinquent Contractor's engagement. The union and the funds shall upon request receive copies of the certified payrolls, cancelled checks, or other proof of payment from the City and/or the relevant Agency(s).

E. In the event the General Contractor or Delinquent Contractor shall notify the Agency as above provided that the claim of the union or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor that the union and/or fringe benefit fund claims to be due it, pending resolution of the dispute pursuant to the union's Schedule A agreement, and the amount shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the

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Delinquent Contractor and union or employee benefit fund shall otherwise agree as to the disposition thereof; provided however, that such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. In the event the Agency shall be required to withhold amounts from a General Contractor for the benefit of more than one fringe benefit fund, the amounts so withheld in the manner and amount prescribed above shall be applied to or for such fund in the order in which the written notices of nonpayment have been received by the Agency, and if more than one such notice was received on the same day, proportionately based upon the amount of the union and/or fringe benefit fund claims received on such day. Nothing herein contained shall prevent the Agency from commencing an interpleader action to determine entitlement to a disputed payment in accordance with section one thousand six of the civil practice law and rules or any successor provision thereto.

F. Payment to a fringe benefit fund under this provision shall not relieve the General Contractor or Delinquent Contractor from responsibility for the work covered by the payment. Except as otherwise provided, nothing contained herein shall create any obligation on the part of the Agency to pay any union or fringe benefit fund, nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the union/fund and/or fringe benefit and the Agency.

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ARTICLE 12- HOURS OF WORK, PREMIUM PAYMENTS,

SHIFTS AND HOLIDAYS

SECTION 1. WORK WEEK AND WORK DAY

A. The standard work week shall consist of 40 hours of work at straight time rates, Monday through Friday, 8 hours per day, plus ½ hour unpaid lunch period. The standard work week may be reduced to 35 or 37 ½ hours of work at straight time rates, Monday to Friday, 7 or 7 ½ hours per day, plus ½ hour unpaid lunch period in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.

B. In accordance with Program needs, there shall be flexible start times with advance notice from Contractor to the Union. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m., for an 8 hour day, and up to 7:30 p.m. for a 10 hour day. The Evening Shift shall commence between the hours of 3:00 p.m. and 6:00 p.m., unless different times are necessitated by the Agency's phasing plans on specific projects. The Night Shift shall commence between the hours of 11:00 p.m. and 2:00 a.m., unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

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C. Scheduling — Except as provided above, Monday through Friday is the standard work week; 8 hours of work plus ½ hour unpaid lunch. Notwithstanding any other provision of this Agreement, a contractor may schedule a four day work week, 10 hours per day at straight time rates, plus a ½ hour unpaid lunch, at the commencement of the job.

D. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hour schedules to be worked or such lesser notice as may be mutually agreed upon.

SECTION 2. OVERTIME

Overtime shall be paid for any work (i) over an employee's regularly scheduled work day, i.e., work over eight (8) hours in a day where 5/8s is scheduled, work over ten (10) hours in a day where 4/10s is scheduled, or work over seven (7) or seven and one half (7 ½) hours where such hours are scheduled pursuant to Article 12, section 1(A) and (ii) over forty (40) hours in a week, or over thirty five (35) or thirty seven and one-half (37 ½) where such hours are scheduled pursuant to Article 12, section 1(A). Overtime shall be paid at time and one half (1½) Monday through Saturday. All overtime work performed on Sunday and Holidays will be paid pursuant to the applicable Schedule A. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize

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overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

SECTION 3. SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Program Work schedules and existing Program Work conditions including the minimization of interference with the mission of the Agency. It is not necessary to work a day shift in order to schedule a second or third shift, or a second shift in order to schedule a third shift, or to schedule all of the crafts when only certain crafts or employees are needed. Shifts must have prior approval of the Agency or Construction Manager, and must be scheduled with not less than five work days notice to the Local Union or such lesser notice as may be mutually agreed upon.

B. Second and/or Third Shifts/Saturday and/or Sunday Work - - The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m., subject to different times necessitated by the Agency phasing plans on specific projects. There shall be no reduction in shift hour work. With respect to second and third shift work there shall be a 5% shift premium. No other premium or other payments for such work shall be required unless such work is in excess of the employee's regularly scheduled work week, i.e., 40 hours in the week or thirty five (35) or thirty seven and one half (37 ½) pursuant to Article 12, section 1(A). All employees within a classification performing Program Work will be paid at the same wage rate regardless of the shift or work scheduled work, subject only to the foregoing provisions.

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C. Flexible Starting Times - Shift starting times will be adjusted by the Contractor as necessary to fulfill Program Work requirements subject to the notice requirements of paragraph A.

SECTION 4. HOLIDAYS

A. Schedule - There shall be nine (9) recognized holidays on the Project:

New Year's Day

Martin Luther King Day President's Day

Memorial Day Veteran's Day

Labor Day Thanksgiving Day

Independence Day Christmas Day

All said holidays shall be observed on the calendar date except those holidays which occur on Saturday shall be observed on the previous Friday and those that occur on Sunday shall be observed on the following Monday.

B. Payment - Regular holiday pay, if any, for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4(A) above shall be recognized or observed.

SECTION 5. SATURDAY MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on

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a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day and such time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked.

SECTION 6. REPORTING PAY

A. Employees who report to the work location pursuant to their regular schedule and who are not provided with work shall be paid two hours reporting pay at straight time rates. An employee whose work is terminated early by a Contractor due to severe weather, power failure, fire or natural disaster or for similar circumstances beyond the Contractor's control, shall receive pay only for such time as is actually worked. In other instances in which an employee's work is terminated early (unless provided otherwise elsewhere in this Agreement), the employee shall be paid for his full shift. Contractors shall not be permitted to call, text or email or voicemail employees in advance of their regularly scheduled shift starting time to avoid reporting pay. Notwithstanding the above, in the event that the National Weather Service issues a weather advisory for the area in which the work location is situated, and the entire project is shut down as a result of the Weather Advisory, the contractor shall be permitted to speak to employees no less than four (4) hours in advance of their shift starting time, unless the Local Union consents to a shorter notice in writing, to advise them not to report to work due to the National Weather Service advisory, and employees who are so notified shall not receive two (2) hours reporting pay if they report to the work location. The contractor shall make every effort to

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notify each employee directly and confirm that notification has been received. Voice, text, and email messages left for employees without confirmation of delivery and receipt by employee do not constitute sufficient notice under this provision.

B. When an employee, who has completed their scheduled shift and left the Program Work site, is "called out" to perform special work of a casual, incidental or irregular nature, the employee shall receive overtime pay at the rate of time and one-half of the employee's straight time rate for hours actually worked.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special premium payments or reduction in shift hours of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article and except where an applicable Schedule A requires a full weeks' pay for forepersons.

SECTION 7. PAYMENT OF WAGES

A. Termination- Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of lay off or discharge.

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SECTION 8. EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

SECTION 9. INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than a full day's pay in accordance with the employee's regularly scheduled work day under Article 12, section (1)(A). Further, the employee shall be rehired at such time as able to return to duties provided there is still Program Work available for which the employee is qualified and able to perform.

SECTION 10. TIME KEEPING

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

SECTION 11. MEAL PERIOD

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts or which provides for staggered lunch periods within a

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craft or trade. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

SECTION 12. BREAK PERIODS

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Where 4/10s are being worked there shall be a morning and an afternoon coffee break.

ARTICLE 13 - APPRENTICES

SECTION 1. RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio permitted by the New York State Department of Labor or the maximum allowed per trade. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate Schedule A. The parties encourage, as an appropriate source of apprentice recruitment consistent with the rules and operations of the affiliated unions' apprentice-programs, the use of the Edward J. Malloy Initiative for Construction Skills, Non-Traditional Employment for Women and Helmets to Hardhats.

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ARTICLE 14-SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 1. SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA and safety requirements are at all times maintained on the Program Work site and the employees and Unions agree to cooperate fully with these efforts to the extent consistent with their rights and obligations under the law. Employees will cooperate with employer safety policies and will perform their work at all times in a safe manner and protect themselves and the property of the Contractor and Agency from injury or harm, to the extent consistent with their rights and obligations under the law. Failure to do so will be grounds for discipline, including discharge.

SECTION 2. CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the Construction Manager for this Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

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SECTION 3. INSPECTIONS

The Contractors and Construction Manager retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

ARTICLE 15 - TEMPORARY SERVICES

Temporary services, i.e. all temporary heat, climate control, water, power and light, shall only be required upon the determination of the Agency or Construction Manager, and when used shall be staffed and assigned to the appropriate trade(s) with jurisdiction. Temporary services shall be provided by the appropriate Contractors' existing employees during working hours in which a shift is scheduled for employees of this Contractor. The Agency or Construction Manager may determine the need for temporary services requirements during non-working hours, and when used shall be staffed and assigned to the appropriate trades(s). There shall be no stacking of trades on temporary services, provided this does not constitute a waiver of primary trade jurisdiction. In the event a temporary system component is claimed by multiple trades, the matter shall be resolved through the New York Plan for Jurisdictional Disputes.

ARTICLE 16 - NO DISCRIMINATION

SECTION 1. COOPERATIVE EFFORTS

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of creed, race, color, religion, sex, sexual orientation, national origin, marital status, citizenship status, disability, age or any other status provided by law, in any manner prohibited by law or regulation.

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SECTION 2. LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 17- GENERAL TERMS

SECTION 1. PROJECT RULES

A. The Construction Manager and the Contractors shall establish such reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work. These rules will be explained at the pre-job conference and posted at the Program Work sites and may be amended thereafter as necessary. Notice of amendments will be provided to the appropriate Local Union. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is for cause.

B. The parties adopt and incorporate the BCTC's Standards of Excellence as annexed hereto as Exhibit "B".

SECTION 2. TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

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SECTION 3. SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 4. TRAVEL ALLOWANCES

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

SECTION 5. FULL WORK DAY

Employees shall be at their work area at the starting time established by the Contractor, provided they are provided access to the work area. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

SECTION 6. COOPERATION AND WAIVER

The Construction Manager, Contractors and the Unions will cooperate in seeking any NYS Department of Labor, or any other government, approvals that may be needed for implementation of any terms of this Agreement. In addition, the Council, on their own behalf and on behalf of its participating affiliated Local Unions and their individual members, intend the provisions of this Agreement to control to the greatest extent permitted by law, notwithstanding contrary provisions of any applicable prevailing wage, or other, law and intend this Agreement to constitute a waiver of any such prevailing wage, or other, law to the greatest extent permissible only for work within the scope of this Agreement, including specifically, but not limited to those provisions relating to shift, night, and similar differentials and premiums. This Agreement does not, however,

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constitute a waiver or modification of the prevailing wage schedules applicable to work not covered by this Agreement.

ARTICLE 18. SAVINGS AND SEPARABILITY

SECTION 1. THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

SECTION 2. THE BID SPECIFICATIONS

In the event that the Agency's (or Construction Manager's) bid specifications, or other action, requiring that a successful bidder (and subcontractor) become signatory to this Agreement is enjoined, on either an interlocutory or permanent

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basis, or is otherwise determined to be in violation of law, or may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, such requirement (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the Agreement shall remain in full force and effect to the extent allowed by law and to the extent no funding or exemption is lost). In such event, the Agreement shall remain in effect for contracts already bid and awarded or in construction only where the Agency and Contractor voluntarily accepts the Agreement. The parties will enter into negotiations as to modifications to the Agreement to reflect the court or other action taken and the intent of the parties for contracts to be let in the future.

SECTION 3. NON-LIABILITY

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

SECTION 4. NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.

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ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 1. CHANGES TO AREA CONTRACTS

A. Schedule A to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements that are the basis for the Schedule A notify the Agency and Construction Manager in writing of the changes agreed to in that Area Collective Bargaining which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule A collective bargaining agreements will not apply to work under this Agreement if such provisions are less favorable to those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied on Program Work if it may be construed to apply exclusively, or predominantly, to work covered by this Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Program Work by any Local Union involved in the renegotiation of Area

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Local Collective Bargaining Agreements nor shall there be any lock-out on such Program Work affecting a Local Union during the course of such renegotiations.

ARTICLE 20 - WORKERS' COMPENSATION ADR

SECTION 1.

An ADR program may be negotiated and participation in the ADR Program will be optional by trade.

ARTICLE 21 - HELMETS TO HARDHATS

SECTION 1.

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the New York City Helmets to Hardhats Program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

SECTION 2.

The Unions and Contractors agree to coordinate with the Program to create and maintain an integrated database of veterans interested in working on this Project and of

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apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

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IN WITNESS WHEREOF the parties have caused this Agreement to be executed and
effective as of the ___ day of _____, _____

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL
OF GREATER NEW YORK AND VICINITY

BY: _____
Gary LaBarbera
President

FOR NEW YORK CITY

BY:
Anthony Shorris
First Deputy Mayor

APPROVED AS TO FORM:

ACTING CORPORATION COUNSEL
NEW YORK CITY

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LIST OF SIGNATORY UNIONS
Boiler Makers Local No. 5
Carpenters District Council
Cement Masons No. 780
Concrete Workers, District Council No. 16
Derrickmen and Riggers, Local Union No. 197
Drywall Tapers 1974, District Council 9
Electrical Workers Local No. 3
Glaziers Local Union No. 1087 District Council 9
Heat & Frost Insulators, Local Union No. 12A
Heat & Frost Insulators, Local Union No. 12
Iron Workers District Council
Iron Workers Local Union No. 40
Iron Workers Local No. 361
Laborers Local No. 78, Asbestos & Lead Abatement
Laborers Local 1010 Pavers and Road Builders District Council
Laborers 79 Construction and General Building Laborers
Laborers Local No. 731 Excavators
Mason Tenders District Council
Metal Lathers Local No. 46
Metal Polishers District Council 9
Ornamental Iron Workers Local No. 580
Painters District Council 9
Plumbers Local No. 1
Painters, Decorators & Wallcoverers District Council 9
Painters Structural Steel No. 806
Plasterers Local Union No. 262
Roofers & Waterproofers Local 8
Steamfitters Local Union No. 638
Sheet Metal Workers Local No. 28
Sheet Metal Workers Local No. 137
Teamsters Local Union No. 282
Teamsters Local Union 814
Teamsters Local No. 813 Private Sanitation
Tile, Marble & Terrazzo B.A.C. Local Union No. 7
Elevator Constructors Union Local No. 1

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SCHEDULE "A"

Union	Current Agreement w/
Architectural and Ornamental Iron Workers Local Union 580, AFL-CIO	Allied Building Metal Industries, Inc.
Building, Concrete, Excavating & Common Laborers Local 731	Independent
Building, Concrete, Excavating & Common Laborers Local 731	Members of the General Contractors Association of New York, Inc.
District Council No. 9, I.U.P.A.T Glaziers Local 1087	Window and Plate Glass Dealers Association
Drywall Tapers and Pointers Local 1974, affiliated with International Union of Painters & Allied Trades and Drywall Taping Contractor's Association & Association of Wall-Ceiling & Carpentry Industries NY, Inc.	Independent
Enterprise Association of Steamfitters and Apprentices Local 638	Mechanical Contractors Association of NY, Inc.
Enterprise Association of Steamfitters and Apprentices Local 638	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Member of the General Contractors Association of New York, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	Independent
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	The Insulation Contractors Association of New York City, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Independent

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International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Environmental Contractors Association, Inc.
International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO, Local Lodge No. 5	Boilermakers Association of Greater New York
Local Union No. 3 International Brotherhood of Electrical Workers, AFL-CIO	New York Electrical Contractors Association
International Brotherhood of Teamsters, Local 282, High Rise contract	Building Contractors Association & Independents
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Cement League
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Independent
Local 8 Roofers, Waterproofers & Allied Workers	Roofing and Waterproofing Contractors Association of New York and Vicinity
Local Union 1 of the United Association of Journeymen and Apprentices of the Pipe Fitting Industry of the United States and Canada	Association of Contracting Plumbers of the City of New York
Local Union Number 40 & 361 of Bridge, Structural Ornamental and Reinforcing Iron Workers AFL-CIO	Independent
Operative Plasterers' and Cement Masons' International Association Local No. 262	Independent
Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	Independent

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Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	The Association of Master Painters & Decorators of NY, Inc. and The Association of Wall, Ceiling & Carpentry Industries of NY, Inc. and The Window and Plate Glass Dealers Association
Sheet Metal Workers' International Association, Local 28	Sheet Metal & Air Conditioning Contractors Association of New York City, Inc.
Sheet Metal Workers' International Association, Local 137	The Greater New York Sign Association
Structural Steel and Bridge Painters Local 806, DC 9 International Union of Painters and Allied Trades, AFL-CIO	New York Structural Steel Painting Contractors Association
Teamsters Local 813	Independent
Teamsters Local 813	IESI NY Corporation
Teamsters Local 814	Greater New York Movers and Warehousemen's Bargaining Group
The Cement Masons' Union, Local 780	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A; Local 18A and Local 20)	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A; Local 18A and Local 20)	Independent

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local No. 1556	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Millwright Local 740	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Manufacturing Woodworkers Association of Greater New York Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Hoisting Trade Association of New York, Inc.
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Test Boring Association

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	Building Contractors Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Association of Wall-Ceiling & Carpentry Industries of New York, Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	The Cement League
The District Council of NYC and Vicinity of the United Brotherhood of Carpenters and Joiners of America	New York City Millwright Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	Greater New York Floor Covering Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Association of Architectural Metal & Glass
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Building Construction Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Local 2287	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Shop Carpenters	Independent
The Tile Setters and Tile Finishers Union of New York and New Jersey, Local 7 of the International Bricklayers and Allied Craftworkers	The Greater New York and New Jersey Contractors Association

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United Derrickmen & Riggers Association, Local 197 of NY, LI, Westchester & Vicinity	Contracting Stonesetters Association Inc.
United Derrickmen & Riggers Association L 197 of NY, LI, Westchester and Vicinity	Building Stone and Pre-cast Contractors Association
International Union of Operating Engineers Local 14-14B	Building Contractors Association
International Union of Operating Engineers Local 14-14B	Contractors Association of Greater NY
International Union of Operating Engineers Local 14-14B	GCA
International Union of Operating Engineers Local 14-14B	The Cement League
International Union of Operating Engineers Local 14-14B	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 14-14B	Brick Association
International Union of Operating Engineers Local 14-14B	Independent
International Union of Operating Engineers Local 15	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 15-15A	General Contractors Association
International Union of Operating Engineers Local 15D	General Contractors Association
International Union of Operating Engineers Local 15D	Structural Steel Erectors

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International Union of Operating Engineers Local 15-15A	Building Contractors Association
International Union of Operating Engineers Local 15D	Building Contractors Association
International Union of Operating Engineers Local 15-15A	Contractors Association of Greater NY
International Union of Operating Engineers Local 15D	Contractors Association of Greater NY
International Union of Operating Engineers Local 15-15A	The Cement League
International Union of Operating Engineers Local 15D	The Cement League

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ADDITIONAL PARTICIPATING UNIONS

Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers

ADDITIONAL PARTICIPATING UNION SCHEDULE A

Union	Current Agreement with:
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Associated Brick Masons Contractors
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Building Restoration Contractors Association
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Building Contractors Association
The Stone Setters of Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent
The Plasterers of Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent

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Project Labor Agreement - - Letter of Assent

Dear:

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

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

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

Provide description of the Work, identify craft jurisdiction(s) and all contract numbers below:

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Dated: _____

(Name of Contractor or subcontractor)

(Name of CM; GC; Contractor or
Higher Level Subcontractor)

(Authorized Officer & Title)

(Address)

(Phone) (Fax)

Contractor's State License

Sworn to before me this
____ day of _____,

Notary Public

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NEW YORK CITY BUILDING AND CONSTRUCTION TRADES COUNCIL
STANDARDS OF EXCELLENCE

The purpose of this Standard of Excellence is to reinforce the pride of every construction worker and the commitment to be the most skilled, most productive and safest workforce available to construction employers and users in the City of New York. It is the commitment of every affiliated local union to use our training and skills to produce the highest quality work and to exercise safe and productive work practices.

The rank and file members represented by the affiliated local unions acknowledge and adopt the following standards:

- *Provide a full days work for a full days pay;*
- *Safely work towards the timely completion of the job;*
- *Arrive to work on time and work until the contractual quitting time;*
- *Adhere to contractual lunch and break times;*
- *Promote a drug and alcohol free work site;*
- *Work in accordance with all applicable safety rules and procedures;*
- *Allow union representatives to handle job site disputes and grievances without resort to slowdowns, or unlawful job disruptions;*
- *Respect management directives that are safe, reasonable and legitimate;*
- *Respect the rights of co-workers;*
- *Respect the property rights of the owner, management and contractors.*

The Unions affiliated with the New York City Building and Construction Trades Council will expect the signatory contractors to safely and efficiently manage their jobs and the unions see this as a corresponding obligation of the contractors under this Standard of Excellence. The affiliated unions will expect the following from its signatory contractors:

- *Management adherence to the collective bargaining agreements;*
- *Communication and cooperation with the trade foremen and stewards;*
- *Efficient, safe and sanitary management of the job site;*
- *Efficient job scheduling to mitigate and minimize unproductive time;*
- *Efficient and adequate staffing by properly trained employees by trade;*
- *Efficient delivery schedules and availability of equipment and tools to ensure efficient job progress;*
- *Ensure proper blueprints, specifications and layout instructions and material are available in a timely manner*
- *Use job site dispute resolution and leadership skills to mitigate such disputes;*
- *Treatment of all employees in a respectful and dignified manner acknowledging their contributions to a successful project.*

Unions and their signatory contractors shall ensure that both the rank and file management staff shall be properly trained in the obligations undertaken in this Standard of Excellence.

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Department of Design and 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

**Bronx Hall of Justice Remediation- Bid
Package 2**

LOCATION: 265 East 161st Street
BOROUGH: Bronx 10456
CITY OF NEW YORK

Contractor

Dated _____, 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20____

