Department of Design and Construction

PROJECT ID: **PV791-TNC**

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:

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
BOROUGH: **New York, NY 10003**
CITY OF NEW YORK

CONTRACT NO. 1 **HVAC Work**

FOR: **NYC Departent of Cultural Affairs**

BY: **Cosentini Associates**

Date: **June 4, 2020**

Department of Design and Construction

Jamie Torres-Springer
Commissioner

Rachel Laiserin
Chief Financial Officer
Finance and Procurement

Lorraine Holley
Deputy ACCO

Nicholas Mendoza
Agency Chief Contracting Officer

May 12, 2021

CERTIFIED MAIL - RETURN RECEIPT REQUEST
PEN ENTERPRISES INC.
521 CONEY ISLAND AVE.
BROOKLYN, NY 11218

RE: FMS ID: PV791-TNC
E-PIN: 85020B0075001
DDC PIN: 8502020PV0004C
THEATER FOR THE NEW CITY - HVAC REPLACEMENT-BOROUGH OF MANHATTAN
NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of $1,440,300.00 submitted at the bid opening on March 11, 2021. 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 two copies of the Agreement. Attached are the Signature Agreement pages which must be completed and returned to the agency. The Agreement must be signed by an officer of the corporation or a partner of the firm.

(2) Submit to the Contracts Unit two 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.

As of August 16, 2019, please be advised that Contract Site Safety Plans for DDC projects must be submitted through DDC's online Site Safety Plan (SSP) application (available via our Agency Portal – *DDC Anywhere*).

To create an account and begin your Site Safety Pan submission using SSP, click on the link below:

DDC Portal https://ddcanywhere.nyc/Registration/Registration

For questions regarding this web-based application, please contact DDC via email at: ddcservicedesk@ddc.nyc.gov.

Sincerely,

Lorraine Holley

Lorraine Holley
Deputy ACCO

PRE BID QUESTIONS (PBQs):

Please be advised that PBQs should be submitted to the Agency Contact Person (CSB_projectinquiries@ddc.nyc.gov) at least five (5) business days (by 5:00 PM EST) prior to the bid opening date as indicated in BID INFORMATION, and SCHEDULE B, VOLUME 1 OF 3 of this BID BOOKLET.

All PBQs must reference the Project ID. If a bidder has multiple PBQs for the same Project ID, the PBQs must be numbered sequentially, even if they are submitted separately.

NYC Contract Financing Loan Fund

Loans at a 3% annual interest rate to perform on New York City contracts

If your business is working as a prime or subcontractor on a project with a City agency or City-funded entity, you may be eligible for a Contract Financing Loan from a participating lender coordinated with the NYC Department of Small Business Services (SBS). Loan repayment terms align with the contract payment schedule.

Loans of up to $500,000 at an annual interest rate of 3% are available to eligible* businesses to perform on New York City contracts. Closing fees apply.

*To be eligible for a loan, you must:
- Have an operating business, AND
- Be applying for financing as a prime or sub-contractor to use toward a contract with a City agency or City-funded entity.
- Additional Eligibility requirements may also apply.

How it works:
Step 1:Fill out the Contract Financing inquiry form at nyc.gov/contractfinancing
Step 2:If Eligible, a participating lender will contact you within two business days.
Step 3:Begin the loan application process
For more information: Call 311 or visit nyc.gov/contractfinancing

(NO FURTHER TEXT ON THIS PAGE)

NYC Bond Collateral Assistance Fund

If your business is bidding or planning to bid on a project as a prime or subcontractor with a City agency or the NYC Economic Development Corporation (NYCEDC) and the project requires surety bonding, you may be eligible* to receive up to $500,000 in Collateral Assistance to enhance your surety bond application from a participating bond service provider coordinated with the NYC Department of Small Business Services (SBS).

*To be eligible, you must:
- Have an operating construction business, AND
- Be bidding or planning to bid as a prime or subcontractor on a contract with a City agency or NYCEDC that requires bonding
- Additional Eligiblity requirements may apply.

How it works:
Step 1:Fill out the Bond Collateral Assistance Fund inquiry form at nyc.gov/bondfund
Step 2:If Eligible, the bond service provider will contact you within two business days
Step 3:Begin the bond application process

For more information: Call 311 or visit nyc.gov/bondfund

(NO FURTHER TEXT ON THIS PAGE)

PROJECT ID: PV791-TNC

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

BID BOOKLET

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BID BOOKLET
PART A

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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)
- Bidder's Certification of Compliance with Iran Divestment Act
- Special Experience Requirements Qualification Form (if required, see pages 3, 4)
- Apprenticeship Program Requirements (if required, see pages 10, 11)
- 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 Agency Contact Person noted on Attachment 1 of this Bid Booklet.

(3) PASSPort Compliance: The Bidder is advised that Vendex Questionnaires and procedures have been replaced by the PASSPort system. Compliance with PASSPort is mandatory for contract award. PASSPort details are set forth in Part B of this Bid Booklet.

(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.

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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:	Fire Alarm Devices
Specification Section:	283100
Manufacturer:	Edwards
Allowance Amount:	Not to Exceed *$14,300*

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SPECIAL EXPERIENCE REQUIREMENTS

Special Experience Requirements apply as indicated below.

Bidder(s):	**HVAC Work**	**___X___ YES**	**_____ NO**
Specific Areas of Work:	**General Construction Work**	**___X___ YES**	**_____ NO**

(A) **SPECIAL EXPERIENCE REQUIREMENTS FOR THE BIDDER IF APPLICABLE:** The special experience requirements set forth below apply to the bidder only if 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) **SPECIAL EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK**: The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor or subcontractor that will perform these specific areas of work. If the 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 Work

- Section 075200: Roofing

(2) Special experience requirements applicable to the contractor or subcontractor who will perform specific areas of work are summarized below.

- 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.

(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. 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.

Qualification Form

Project ID: PV791-TNC

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: Per Enterprises Inc

Name of Project: Snug Harbor Phase 1

Location of Project: Staten Island NY

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

Name: Ramona Neil

Title: PM Phone Number: (718)548 3805

Brief description of work completed: chiller Replacement

Was the work performed as a prime or a subcontractor: PM ZM E

Amount of Contract: 3,000,000

Date of Completion: 4/20

****

Name of Contractor: Per Enterprises Inc

Name of Project: Baisley Library

Location of Project: Queens NY

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

Name: Mohamad Rahman

Title: PM Phone Number: 347882 9325

Brief description of work completed: HVAC Replacement

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

Amount of Contract: 1,174,000

Date of Completion:

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Qualification Form

Project ID: PV791-TNC

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: Pen Enterprises Inc

Name of Project: BMCC HVAC Replacement

Location of Project: Manhattan NY

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

Name: Peter Jackson

Title: PM Phone Number: 917 453 8154

Brief description of work completed: HVAC Replacement

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

Amount of Contract: 2,500,000

Date of Completion: 4/19

****

Name of Contractor: Pen Enterprises Inc

Name of Project: Marcy Library

Location of Project: Brooklyn NY

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

Name: Doron GARCIA

Title: PM Phone Number: 347 409 1206

Brief description of work completed: HVAC Replacement

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

Amount of Contract: 1,300,000

Date of Completion: 4/18

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Qualification Form

Project ID: PV791-TNC

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 MWBEModification@ddc.nyc.gov. 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 PASSPort as caution data.

SCHEDULE B – M/WBE Utilization Plan

NYC Mayor's Office of Contract Services

Part 1: M/WBE Participation Goals

Contract Overview (To be completed by contracting agency)

APT E-Pin# 85020B0075 FMS Project ID# PV791-TNC

Project Title Theater for the New City- HVAC Replacement Agency PIN# 8502020PV0004C

Contracting Agency Department of Design and Construction Bid/Proposal Response Date

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

Contact Person Brandon milliner Title MWBE Outreach and Compliance Analyst

Telephone (718) 391-1416 Email MillineBr@ddc.nyc.gov

Project Description (attach additional pages if necessary)

This Project consists of the replacement of 1 air handling unit and the installation of 2 new air handling units to provide heating, ventilation, and air conditioning to the lobby area, Johnson Theater, and Theater storage.

Bidder or proposer ☐ is required OR ☒ is not required to specifically identify the contact information of all M/WBE firms they intend to use as a subcontractor on this contract, including the M/WBE vendor name, address and telephone number in the space provided below in Part 2 Section 4.

M/WBE Participation Goals for Services

Enter the percentage amount for each category or for an unspecified Goal.

Prime Contract Industry: HVAC work

Category and Breakdown:

Unspecified	16.00 %
Black American	%
Hispanic American	%
Asian American	%
Women	%
Total Participation Goals	16.00 % (Line 1)

Part 2: M/WBE Participation Plan

(To be completed by the bidder/proposer unless granted a full waiver, which must be submitted with the bid/proposal in lieu of this form)

Section 1: Prime Contractor Contact Information

Tax ID# 113322341 FMS Vendor ID#

Business Name Per Enterprise Inc Contact Person Philip Ettegui

Business Address 521 Coney Island Ave City Brooklyn State NY ZIP 11230

Telephone 2122824000 Email Per Enterprise Inc

Section 3: Contractor M/WBE Utilization Plan

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 in the panels in Section 2, 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 in the panels in Section 2, 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 in the panels in Section 2, as applicable.

Section 2: M/WBE Utilization Goal Calculation

Prime Contractor Adopting Agency Participation Goals

For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals

Total Bid/Proposal Value $ 1,440,300

multiplied by x

Total Participation Goals 16 % (Line 1 above)

Calculated M/WBE Participation Amount $ 230,448 (Line 2)

OR

Prime Contractor With Partial Waiver Approval Adopting Revised Participation Goals

For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Revised M/WBE Participation Goals

Total Bid/Proposal Value $

multiplied by x

Total Revised Participation Goals %

Calculated M/WBE Participation Amount $ (Line 3)

Tax ID# 11 3322341

APT E-Pin#

Section 4: 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? 40 %

Enter a brief description of the type(s) and dollar value of subcontracts for all services you plan to subcontract if awarded this contract, along with the anticipated start and end dates for such subcontracts. For each item, indicate whether the work is designated for participation by an M/WBE. Where the contracting agency's solicitation has indicated a requirement that the bidder or proposer specifically identify the contact information of all M/WBEs they intend to use on this contract, vendors must also include the M/WBE vendor name, address and telephone number in the space provided below. Use additional sheets if necessary.

	Description of Work	Start Date (MM/YY)	End Date (MM/YY)	Planned $ Amount	Designated for M/WBE Y	Designated for M/WBE N	M/WBE Vendor Name	M/WBE Address	M/WBE Telephone
1.	~~[illegible]~~	/	/	$	☐	☐			( ) -
2.	Electric	N/A	N/A	$ 140000	☒	☐	El Mhrst Electric	Mickville NY	718 810 3072
3.	Sheet Metal	N/A	N/A	$ 100000	☒	☐	CF Metal	Bronx NY	718 4849541
4.	Satellite	N/A	N/A	$ 150000	☐	☒	Satelite	Bronx NY	718 8254306
5.	Steel	N/A	N/A	$ 80,000	☐	☒	AJ Crane	Wyckoff NY	631 6436088
6.	Insulation	N/A	N/A	$ 108000	☐	☒	OMN Insulation	Yonkers	6 [illegible] 7731092
7.		/	/	$	☐	☐			( ) -
8.		/	/	$	☐	☐			( ) -
9.		/	/	$	☐	☐			( ) -
10.		/	/	$	☐	☐			( ) -

Plumbing

Section 5: Vendor Certification and Required Affirmations

I hereby:

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

Signature [signature] Date 3/11/21

Print Name Philip Cottedy Title President

NYC Mayor's Office of Contract Services

SCHEDULE B – Part 3

Request for Waiver of M/WBE Participation Requirement

Contract Overview

Tax ID#_____ FMS Vendor ID#_____

Business Name_____ Contact Name_____

Email_____ Telephone_____

Contracting Agency_____

APT E-Pin#_____ Bid/Proposal Due Date_____

M/WBE Participation Goals for Services

Defined by AGENCY in bid/ solicitation documents

Percent of the total contract value to be subcontracted to M/WBE vendors for services and/or credited to an M/WBE Qualified Joint Venture.

Unspecified _____ %

Black American _____ %

Hispanic American _____ %

Asian American _____ %

Women _____ %

Total Participation Goals _____ %

Proposed by VENDOR seeking waiver

Percent of the total contract value anticipated in good faith by the bidder/ proposer to be subcontracted to M/WBE businesses for services. Or if M/WBE Qualified Joint Venture, percent of total contract value anticipated to be credited to M/WBE vendor(s).

Unspecified _____ %

Black American _____ %

Hispanic American _____ %

Asian American _____ %

Women _____ %

Total Participation Goals _____ %

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. Identify your subcontracting plan in the vendor certification section below.

☐ Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal requested here. Explain under separate cover.

Vendor Contract History

Using the attached Excel template, list all contracts (for City and Non-City work) performed within the last 3 years and provide the requested information for each contract.

From the list of all contracts, provide reference information below for the 5 most relevant contracts in size, scale and scope (performed for New York City or any other entity) to the bid or proposal for which you are submitting this waiver request. Provide the requested information for each subcontract awarded during the life of the listed reference contract.

Please make sure to highlight the 5 reference contracts provided below among the comprehensive list of all your contract awards within the attached Excel template.

Reference 1

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $_____

Reference 2

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $_____

Reference 3

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $_____

APPRENTICESHIP PROGRAM REQUIREMENTS

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

General Construction _____ YES **x** NO

* Note: Even if Yes is marked, the Exemption set forth below may apply.

1) Apprenticeship Program Requirements

NOTICE TO BIDDERS: Please be advised that, pursuant to the authority granted to the City under Labor Law Section 816-b, the Department of Design and Construction hereby requires that the contractor awarded a contract as a result of this solicitation, and any of its subcontractors with subcontracts worth two million dollars or over, have, prior to entering into such contract or subcontract, apprenticeship agreements appropriate for the type and scope of work to be performed that have been registered with, and approved by, the New York State Commissioner of Labor. In addition, the contractor and its subcontractors will be required to show that such apprenticeship program/s have successfully passed the two year Probation period following the initial registration date of such program/s with the New York State Department of Labor.
The failure to prove, upon request, that these requirements have been met shall result in the contract not being awarded to the contractor or the subcontractor not being approved.

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

All bidders are required to submit the completed Apprenticeship Program Questionnaire with their bids.

2) Apprenticeship Program Questionnaire

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

3) Exemption

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

_____ YES _____ NO

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

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APPRENTICESHIP PROGRAM QUESTIONNAIRE ("APQ")
PROJECT ID: PV791-TNC

The bidder MUST complete, sign and submit this Apprenticeship Program Questionnaire with its bid.

Name of Bidder: _____

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

   _____ YES _____ NO

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

   _____ YES _____ NO

3. Has/have the bidder's Apprenticeship Program successfully passed the two-year Probation period following its initial registration with the New York State Department of Labor?

   _____ YES _____ NO

If the answers to Questions 1, 2, and 3 are "Yes", the bidder shall, in the space below (and/or attached herewith where applicable), provide the contact information for such Apprenticeship Program(s) as well as information demonstrating that such Apprenticeship Program(s) have passed the two-year Probation period following its initial registration with the New York State Department of Labor. (*The bidder may attach additional pages if necessary.*)

- **Where the bidder directly sponsors any such Apprenticeship Program(s)**, the bidder shall provide the following:
  - The trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the New York State Commissioner of Labor; and/or
  - A copy of a letter(s) from the New York State Department of Labor ("NYSDOL"), on NYSDOL's letterhead, executed by an official thereof, which verifies/verify the trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the New York State Commissioner of Labor and the Active status of such program(s).

- **Where the bidder participates in any such Apprenticeship Program(s) through its membership in an employer organization(s) that directly sponsors such program(s) or where the employer association(s) participates in such program(s) through collective bargaining,** the bidder shall provide the following:
  - The contact information for the employer organization(s), and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith, and the date such program(s) was/were approved by the New York State Commissioner of Labor; or
  - A letter(s) from such employer organization(s), on letterhead of such organization(s), executed by an officer, delegate or official thereof, which verifies/verify the trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the New York State Commissioner of Labor, and that the bidder is both a member in good standing of the identified employer organization and is subject to the provisions of the Apprenticeship Program agreement(s) sponsored thereby.

- **Where the bidder participates in any such Apprenticeship Program(s) through collective bargaining agreements**, the bidder shall provide the following:
  - The contact information for such collective bargaining entity(ies) and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith;
  - A letter(s) from such collective bargaining entity(ies), on letterhead of such entity(ies), executed by an officer, delegate or official thereof, which verifies/verify the bidder's status as a signatory/participant in good standing to such collective bargaining entity(ies) Apprenticeship Program agreement(s).

Bidder: _____

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

Date: _____

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: PV791-TNC

Theater for the New City- HVAC Replacement
155 First Avenue
New York, NY 10003

Name of Bidder: Pen Enterprises Inc

Date of Bid Opening: 3/11/21

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

Place of Business of Bidder: 521 Coney Island Ave Brooklyn NY 11218

Bidder's Telephone Number: (718) 284-4002 Bidder's Fax Number: (917) 940-8920

Bidder's Email Address: Penenterprises@yahoo.com

Residence of Bidder (If Individual): _____

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

Names of Partners	Residence of Partners
_____	_____
_____	_____
_____	_____

If Bidder is a Corporation, fill in the following blanks:
Organized under the laws of the State of NY

Name and Home Address of President: Philip Ettedgui
41 Bayberry Rd Lawrence NY 11559

Name and Home Address of Secretary: _____

Name and Home Address of Treasurer: (only principal)

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The above-named Bidder affirms and declares:

1. The said bidder is of lawful age and the only one interested in this bid; and no person, firm or corporation other than hereinbefore named has any interest in this bid, or in the Contract proposed to be taken.

2. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

3. No councilman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

4. The bidder is not in arrears to the City of New York upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the CIty of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page 17 of this Bid Booklet.

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

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

6. Compliance Report

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

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

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

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

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

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: PV791-TNC

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 and material, including overhead and profit for all the Work, described below and shown in the drawings and specifications.

Total Price For Labor		Total Price for Material Sold and Delivered		
$ 1,000,000	+	$ 411,000	Total Price for Item A= $	1,411,000

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

C. AMOUNT for Proprietary Items (page 2a) **$14,300.00**

TOTAL BID PRICE (Add A + B + C) (a/k/a BID PROPOSAL) $ 1,440,300

BR 3/11/24

BIDDER'S SIGNATURE AND AFFIDAVIT

* **SUBCONTRACTOR IDENTIFICATION: You MUST complete and submit the form entitled "Bidder's Identification of Subcontractors" (page 19) 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: Pen Enterprises Inc

By: _____
(Signature of Partner or corporate officer)

_____
Attest: Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM (TO BE NOTARIZED)

****

AFFIDAVIT WHERE BIDDERS IS AN INDIVIDUAL

STATE OF NEW YORK, COUNTY OF _____ ss:

_____ being duly sworn says:

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

_____

(Signature of the person who signed the Bid)

Subscribed and sworn to before me this

____ day of _____, _____

_____

Notary Public

****

AFFIDAVIT WHERE BIDDERS IS A PARTNERSHIP

STATE OF NEW YORK, COUNTY OF _____ ss:

_____ being duly sworn says:

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

_____

(Signature of Partner who signed the Bid)

Subscribed and sworn to before me this

____ day of _____, _____

_____

Notary Public

****

AFFIDAVIT WHERE BIDDERS IS A CORPORATION

STATE OF NEW YORK, COUNTY OF Kings ss:

Philip Ettedgui being duly sworn says:

I am the Philip Ettedgui of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at 41 Bayberry Rd Lawrence NY 11559

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

17 day of March 2021

_____

Notary Public

CATHERINE NINIVE
Commissioner of Deeds, CNY
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 20 21

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: Pen Enterprises Inc
Address: 621 Coney Island Ave
City: Brooklyn State: NY Zip Code: 11218

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
113323541

By: _____
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.

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 1 of 2013, 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.

Please note that the Agency will not award this contract for an amount greater than $3 million.

BIDDER'S IDENTIFICATION OF SUBCONTRACTORS

Project ID: PV791-TNC

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:**

Satelite Plumbg
(Print Name)

Agreed amount to be paid Subcontractor: $ 150,000

Description of Plumbing Work:

GAS Work

2. **ELECTRICAL CONTRACTOR:**

Elmhurst Electric
(Print Name)

Agreed amount to be paid Subcontractor: $ 140,000

Description of Electrical Work:

power wash

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

(Bidder's Signature) Philip Ettedgui (Print Name)

521 Coney Island Ave Brooklyn NY 11218
(Address)

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

BID BOND 1
FORM OF BID BOND

Bond # PEN MAR 03 21

KNOW ALL MEN BY THESE PRESENTS. That we, Pen Enterprises, Inc.
521 Coney Island Avenue; Brooklyn, NY 11218

hereinafter referred to as the "Principal", and US Specialty Insurance Company
801 South Figueroa, Suite 700
Los Angeles, CA 90017-5721

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 10% of the total amount of the 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 Project ID: PV791-TNC

Theater for the New City - HVAC Replacement

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

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

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

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

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 25th day of February, 2021.

(Seal)

PEN ENTERPRISES, INC. (L.S.)

Principal

By: _____

Philip Ettedgui, President

(Seal)

U.S. Specialty Insurance Company

Surety

By: _____

Emanuel Hatzigeorge, Attorney-in-Fact

BID BOND 3

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of NY County of Kings ss:
On this 11 day of March, 2021, before me personally came Philip Ettwein to me known, who, being by me duly sworn, did depose and say that he resides at 41 Bayonne Rd Larchmont NY 10553 that he is the President of Pen Enterprises 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.

CATHERINE NINIVE
Commissioner of Deeds, CNY
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 2021

Catherine Ninive
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

ACKNOWLEDGMENT OF CORPORATE SURETY

STATE OF NEW YORK)

ss :

COUNTY OF WESTCHESTER

)

On this 25th day of February, 2021 before me appeared Emanuel Hatjygeorge to me personally known, who being by me duly sworn, did say that the is the aforesaid officer or attorney in fact of the U.S. Specialty Insurance Company, a corporation; that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the aforesaid officer, by authority of its Board of Directors and the aforesaid officer acknowledged said instrument to be the free act and deed of said corporation.

PATRICK JAMES HATJYGEORGE
NOTARY PUBLIC-STATE OF NEW YORK
No. 01HA6330070
Qualified in Westchester County
My Commission Expires September 14, ~~2019~~ 2023

TOKIO MARINE HCC

POWER OF ATTORNEY

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a Maryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Emanuel Hatjygeorge

its true and lawful Attorney(s)-in-fact, each in their separate capacity if more than one is named above, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver **any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include riders, amendments, and consents of surety, providing the bond penalty does not exceed** ******Unlimited****** Dollars (***unlimited***). This Power of Attorney shall expire without further action on April 23rd, 2022. This Power of Attorney is granted under and by authority of the following resolutions adopted by the Boards of Directors of the Companies:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of June, 2018.

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

State of California

County of Los Angeles

By: _____
Daniel P. Aguilar, Vice President

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document

On this 1st day of June, 2018, before me, Sonia O. Carrejo, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

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

WITNESS my hand and official seal.

SONIA O. CARREJO
Notary Public - California
Los Angeles County
Commission # 2239479
My Comm. Expires Apr 23, 2022

Signature _____ (seal)

I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this 23rd day of February, 2021.

Corporate Seals
Bond No. _____

Agency No. 700164

_____
Kio Lo, Assistant Secretary

HCCSMANPOA05/2019

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U.S. SPECIALTY INSURANCE COMPANY
STATUTORY STATEMENT OF ADMITTED ASSETS,
LIABILITIES, CAPITAL AND SURPLUS *(1)*
December 31, 2019

Admitted Assets		*Liabilities and Capital and Surplus*	
Investments:		Liabilities:	
Fixed Maturities, at amortized cost	1,583,617,554	Unpaid loss and loss adjustment expense	1,016,184,440
Preferred Stocks	8,448,020	Reinsurance payable on paid losses and loss adjustment expenses	108,248,183
Common stocks	9,237,242	Commission payable	8,626,038
Mortgage loans on real estate - first liens	116,145,785	Accrued expenses	8,141,789
Mortgage loans on real estate - other than first liens	2,135,273	Taxes, licenses, and fees	2,489,724
Cash and short term investments	69,497,884	Unearned premiums	291,221,207
Total cash and invested assets:	1,789,081,758	Advance premium	13,355,289
		Dividends to policyholders	354,678
		Ceded reinsurance balance payable	74,844,745
		Funds held under reinsurance treaties	4,801,678
		Amounts withheld or retained for others	13,951
		Provision for reinsurance	4,257,200
		Payable to parent, subsidiaries and affiliates	8,373,353
Investment income due and accrued	17,053,327	Payable for securities	4,276,759
Premium receivable	262,053,496	*Total liabilities*	1,545,189,034
Recoverable from reinsurers	18,842,138		
Current federal and foreign income tax recoverable	5,143,064		
Net deferred tax asset	24,360,562	Capital and Surplus:	
Electronic data processing equipment and software	81,226	Capital Stock	4,200,000
Receivable from parent, subsidiaries and affiliates	14,027,257	Additional paid-in and contributed capital	190,085,811
Miscellaneous receivables	513	Unassigned surplus	391,168,496
	341,561,583		585,454,307
Total admitted assets	2,130,643,341	*Total liabilities and capital and surplus*	2,130,643,341

(1) - In accordance with the statutory financial statements as filed on March 1, 2020.

I, Cave J. McKeown III, Chief Financial Officer of U.S. Specialty Insurance Company, hereby certify that to the best of my knowledge and belief, the foregoing is a full and true Statutory Statement of Admitted Assets, Liabilities and Capital and Surplus of the Company as of December 31, 2019, prepared in conformity with accounting practices prescribed or permitted by the Texas Department of Insurance. The foregoing statement should not be taken as a complete statement of financial condition of the Company. Such a statement is available upon written request at the Company's home office located at 13403 Northwest Freeway, Houston, Texas 77040.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Corporation at Houston, Texas.

Cave J. McKeown III
Chief Financial Officer

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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 - HVAC WORK

Project: Theater for the New City - HVAC Replacement
Location: 155 First Avenue, New York, NY 10003
Bidder: Pen Enterprises Inc

DDC ID: PV791-TNC
Sponsor Agency: NYC Department of Cultural Affairs

CSI Number	Description	Quantity	Unit	Total Cost of Material	Total Cost of Labor	Total Cost of Equipment	Total Cost: Materials, Labor and Equipment
	CONTRACT 1 - HVAC WORK						
01 0000	**GENERAL REQUIREMENTS (DDC GENERAL CONDITIONS)**						
01 1000	**SUMMARY**						
	Mobilization and demobilization	1	LS	$5,000	$20,000.00		$25,000.00
	Temporary Light and power	1	LS	$1,000	$2,000.00		$3,000.00
	Temporary Heat	7	EA	$2,100	$1,400.00		$3,500.00
	Subtotal						**$31,500.00**
02 0000	**EXISTING CONDITIONS**						
02 4119	**SELECTIVE REMOVAL AND DEMOLITION (included with other Divisions 3, 23, 24& 26)**						
02 8213	**ASBESTOS ABATEMENT**						
	East Roof						
	Exhaust Vent Flashing (Black)	36	SF	$540	$1,800.00		$2,340.00
	West Lower Roof						
	Tar Vapor Barrier (Black), Contaminated Roof Membrane (Black) & Roof Membrane Patch (Black/Grey)	250	SF	$3,750	$12,500.00		$16,250.00
	HVAC Unit / Skylight Flashing (Black)	50	SF	$750	$2,500.00		$3,250.00
	Exhaust Vent Flashing (Black)	36	SF	$540	$1,800.00		$2,340.00
	Tar on Exhaust Vent (Black)	10	SF	$150	$670.00		$820.00
	Subtotal						**$25,000.00**
03 0000	**CONCRETE**						
03 7330	**CONCRETE REPAIR WORK**						
	Demo						
	Sawcut slab and roofing	120	LF	$500	$5,000.00		$5,500.00
	Remove concrete slab and roofing	112	SF	$0	$5,000.00		$5,000.00

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	Remove concrete slab, roofing and patch after construction	1	LOC	$600	$1,000.00		$1,600.00
	Remove existing concrete encasement in beam and repair after	60	LF	$8,000.00	$10,000.00		$18,000.00
	Concrete Restoration						
	New Work						
	Infill slab opening with sika top mortar mix	3	EA	$1,000	$3,000.00		$4,000.00
	Infill existing roof opening, 3 1/4" Light Weight Concrete	75	SF	$1,700	$8,500.00		$10,200.00
	Patch openings at AC units	3	EA	$300	$1,500.00		$1,800.00
	Patch roof openings						
	H&V unit	1	EA	$2,000	$5,000.00		$7,000.00
	Flue and OA intake	4	EA	$500	$2,000.00		$2,500.00
	Components, patching & repair work, core drilling, delivery, storage, handling, remove damage etc.	1	LS	$1,000	$4,000.00		$5,000.00
	Misc. Patching and repair	1	LS	$1,000	$2,000.00		$3,000.00
	Subtotal						**$63,600.00**
05 0000	**METALS**						
05 1200	**STRUCTURAL STEEL**						
	RTU-1						
	W 12X26	74	LF	$2,000	$8,000.00		$10,000.00
	HSS 4X4X3/8 post, 2.5' high	4	EA	$600	$2,400.00		$3,000.00
	Shear plate, 4"x8"X3/8"	14	EA	$700	$2,800.00		$3,500.00
	Steel plate, 14"x14"x3/8"	4	EA	$200	$400.00		$600.00
	Base plate, 14"x14"x3/4"	4	EA	$200	$400.00		$600.00
	L 4X4X3/8", kicker bracing, 1.5' long	8	EA	$800	$4,800.00		$5,600.00
	Misc. clips, angles and connections	1	LS	$1,000	$4,000.00		$5,000.00
	RTU-2&3						
	W 8x15	6	FT	$200.00	$800.00		$1,000.00
	W 12x29	14	FT	$800	$3,200.00		$4,000.00
	W 12x26	172	FT	$9,000	$22,200.00		$31,200.00

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CSI Number	Description	Quantity	Unit	Total Cost of Material	Total Cost of Labor	Total Cost of Equipment	Total Cost: Materials, Labor and Equipment
	HSS 4x4x3/8 post, 2.5' high	5	EA	$750	$3,000.00		$3,750.00
	Shear plate, 4"x8"X3/8"	21	EA	$2,300	$4,600.00		$6,900.00
	Steel plate, 14"x14"x3/8"	5	EA	$250	$500.00		$750.00
	Base plate, 14"x14"x3/4"	5	EA	$250	$500.00		$750.00
	L 4X4X3/8", kicker bracing, 1.5' long	11	EA	$1,100	$6,600.00		$7,700.00
	Misc. clips, angles and connections	1	LS	$1,000	$6,000.00		$7,000.00
	Roof strengthening / framing						
	Demo						
	Remove existing beam	8	FT	$0	$1,500.00		$1,500.00
	New Work						
	W 8X10	72	FT	$1,000	$4,000.00		$5,000.00
	W 10X19	216	FT	$5,000	$10,000.00		$15,000.00
	HSS 4X4X3/8 post, 2.5' high	4	EA	$150	$2,100.00		$2,250.00
	Shear plate, 4"x8"x3/8"	42	EA	$1,600	$3,309.00		$4,909.00
	Steel plate, 14"x14"x3/8"	4	EA	$400.00	$2,109.00		$2,509.00
	Base plate, 14"x14"x3/4"	4	EA	$600.00	$2,109.00		$2,709.00
	Stiffener plate, 3/8"x14"	42	FT	$300.00	$1,600.00		$1,900.00
	Welded steel plate, 6"x1/2"	30	FT	$500	$2,000.00		$2,500.00
	L 4X4X1/2	50	FT	$1,500	$4,209.00		$5,709.00
	L 4X8X1/2	50	EA	$1,500	$4,209.00		$5,709.00
	L 6X4X7/8, 6" long	20	EA	$200	$2,405.00		$2,605.00
	Misc. clips, angles and connections	1	LS	$3,000	$5,000.00		$8,000.00
	Misc. steel (angles, brackets, plates - supports, crainage, scrape, clean, prime & paint steel, bolting, drilling, connections etc.)	1	LS	$5,000	$5,000.00		$10,000.00
	Subtotal						**$161,650.00**
05 3000	**METAL DECKING**						
	Infill existing roof opening, 3"-18 GA metal deck	75	SF	$750	$3,750.00		$4,500.00

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	Subtotal						**$4,500.00**
07 0000	**THERMAL AND MOISTURE PROTECTION**						
07 5200	**ROOFING**						
	Roofing system and misc. roof work	1	LS	$15,000	$50,000.00		$65,000.00
	Subtotal						**$65,000.00**
07 8413	**FIRESTOPS AND SMOKESEALS (included w/ Div 22 0500, Div 23 0500, Div 26 0500)**						
09 0000	**FINISHES**						
09 9000	**PAINTING AND COATING (included w/ Div 23 3113, Div 26 0544)**						
22 0000	**PLUMBING**						
22 0500	**COMMON WORK RESULTS FOR PLUMBING**						
	Disconnect and cap gas piping	5	EA	$500	$1,500.00		$2,000.00
	Remove gas piping and supports	45	LF	$100	$1,900.00		$2,000.00
	Miscellaneous items						
	Testing	1	LS	$200	$2,000.00		$2,200.00
	Seismic restraints	1	LS	$200.00	$200.00		$400.00
	Core holes, sleeves, fire seal	1	LS	$600.00	$1,800.00		$2,400.00
	Clean, dispose	1	LS	$500.00	$1,000.00		$1,500.00
	Subtotal						**$10,500.00**
22 0517	**SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING (included w/ Div 22 1600)**						
22 0518	**ESCUTCHEONS FOR PLUMBING PIPING (included w/ Div 22 160**						

Department of Design and Construction

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22 0529	**HANGERS, SUPPORTS AND MISCELLANEOUS FOR PLUMBING PIPING AND EQUIPMENT (included w/ Div 22 1600)**						
22 0553	**IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT**						
	Tagging & Identification	1	LS	$500.00	$1,000.00		$1,500.00
	Subtotal						**$1,500.00**
22 0800	**COMMISSIONING OF PLUMBING**						
	Commissioning of Plumbing	1	LS	$1,000	$2,500.00		$3,500.00
	Subtotal						**$3,500.00**
22 1600	**NATURAL GAS PIPING AND EQUIPMENT**						
	2 1/2"	150	LF	$2,500	$37,500.00		$40,000.00
	3"	130	LF	$3,000	$32,000.00		$35,000.00
	Connect new gas piping to existing main, 4" main	1	EA	$1,000	$2,500.00		$3,500.00
	2 1/2" Shutoff valve	3	EA	$300	$3,000.00		$3,300.00
	2HR rated enclosure for gas piping	160	LF	$3,000	$16,000.00		$19,000.00
	Capped outlet on existing gas piping	5	EA	$250	$500.00		$750.00
	Subtotal						**$101,550.00**
23 0000	**HEATING, VENTILATING & AIR CONDITIONING**						
23 0130.51	**HVAC AIR-DISTRIBUTION SYSTEM CLEANING**						
	HVAC Air-distribution System Cleaning	1	LS	$500	$500.00		$1,000.00
	Subtotal						**$1,000.00**
23 0500	**COMMON WORK RESULTS FOR HVAC**						
	Heating & Ventilating Unit. Disconnect duct and piping from unit. Remove gas piping back to mains, cap pipe	4	EA	$800.00	$3,500.00		$4,300.00
	AC unit. Disconnect ducts and piping	2	EA	$200.00	$500.00		$700.00

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	Roof top Toilet Exhaust Fan. Disconnect duct	1	EA	$400.00	$800.00		$1,200.00
	Through the wall AC unit	3	EA	$100.00	$900.00		$1,000.00
	Existing outdoor air ductwork and gas flue for AC units	1	LS	$100.00	$200.00		$300.00
	Remove Ductwork	200	LF	$500	$3,000.00		$3,500.00
	Remove Diffusers/Grilles	8	LF	$0	$500.00		$500.00
	Cap duct	3	EA	$600.00	$900.00		$1,500.00
	Removal of Rental AC unit, including ductwork & accessories	1	EA	$500.00	$500.00		$1,000.00
	Miscellaneous						
	Rigging	1	LS	$0	$47,200.00		$47,200.00
	Seismic restraints	1	LS	$250	$250.00		$500.00
	Cut, patch, fire seal	1	LS	$500	$500.00		$1,000.00
	Clean, dispose	1	LS	$0	$500.00		$500.00
	Subtotal						**$63,200.00**
23 0513	**COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT (included w/ Div 23 7413)**						
23 0515	**VARIABLE FREQUENCY CONTROLLERS (included w/ Div 23 7413)**						
23 0547	**VIBRATION ISOLATION (NON SEISMIC)**						
	Vibration Isolation	1	LS	$500.00	$500.00		$1,000.00
	Subtotal						**$1,000.00**
23 0550	**BASIC MECHANICAL MATERIALS AND METHODS**						
	Barometric Relief	2	EA	$600.00	$400.00		$1,000.00
	DS-1,2 - 8000 CFM, Duct silencers	2	EA	$5,000.00	$1,500.00		$6,500.00
	DS-3,4 - 6000 CFM, Duct silencers	2	EA	$5,000.00	$1,500.00		$6,500.00
	Subtotal						**$14,000.00**

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23 0593	**TESTING, BALANCING AND ADJUSTING**						
	Balancing	1	LS	$1,000.00	$14,000.00		$15,000.00
	Subtotal						**$15,000.00**
23 0700	**HVAC INSULATION**						
	Fiberglass insulation - Duct	2600	SF	$25,000.00	$25,000.00		$50,000.00
	Subtotal						**$50,000.00**
23 0710	**FIRE RESISTIVE DUCT ENCLOSURES (included w/ Div 22 1600)**						
23 0720	**ACOUSTICAL DUCT LINING AND DUCT WRAP**						
	Duct Acoustic Lining	6000	SF	$30,000.00	$15,000.00		$45,000.00
	Subtotal						**$45,000.00**
23 0800	**COMMISSIONING OF HVAC SYSTEMS**						
	Testing and commissioning	1	LS	$0.00	$6,000.00		$6,000.00
	Subtotal						**$6,000.00**
23 0995	**ENCLOSED CONTROLLERS**						
	RTU Stand alone Control Panel, conduit, wiring & accessories	3	EA	$30,000	$36,500.00		$66,500.00
	Duct Smoke Detector installed under electrical)	7	EA	$7,000	$7,000.00		$14,000.00
	Thermostat, conduit & wiring for RTU	3	EA	$9,000.00	$11,000.00		$20,000.00
	Subtotal						**$100,500.00**
23 3113	**METAL DUCTWORK**						
	Ductwork	9,000	LBS	$36,000	$72,000.00		$108,000.00
	Duct supports on roof incl. pitch pockets etc.	22	EA	$11,000	$22,000.00		$33,000.00
	Gooseneck Connection for exhaust	2	EA	$1,000.00	$3,000.00		$4,000.00

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	Painting of Duct	1	LS	$3,000.00	$12,000.00		$15,000.00
	Subtotal						**$160,000.00**
23 3313	**DAMPERS (included w/ Div 23 3113)**						
23 3400	**FANS**						
	EF-1,2,3 - Exhaust fans, 150 CFM	3	EA	$6,000.00	$4,000.00		$10,000.00
	Subtotal						**$10,000.00**
23 3715	**AIR DISTRIBUTION DEVICES**						
	Transfer Registers	23	EA	$4,600	$6,900.00		$11,500.00
	Ceiling Diffusers	5	EA	$1,000	$1,500.00		$2,500.00
	Return Grille 48x36	2	EA	$1,000	$1,200.00		$2,200.00
	Return Grille 76x20	1	EA	$800.00	$816.00		$1,616.00
	Subtotal						**$17,816.00**
23 7413	**PACKAGED ROOFTOP AIR CONDITIONING UNITS**						
	RTU-1 & 2, 20 TON Roof Top Units with gas heating	2	EA	$140,000	$15,000.00		$155,000.00
	RTU-3, 10 TON, Roof Top Units with gas heating	1	EA	$60,000.00	$10,000.00		$70,000.00
	RTUs, gas piping connection	4	EA	$500	$2,000.00		$2,500.00
	Installation of Rental AC unit & Ducting, with hook up.	1	LS	$0	$1,000.00		$1,000.00
	Temporary - AC Rental & Ducting w/routine checkup & inspection	16	Months	$500	$500.00		$1,000.00
	Subtotal						**$229,500.00**
26 0000	**ELECTRICAL**						
26 0500	**COMMON WORK RESULTS FOR ELECTRICAL**						
	Demo Existing Mechanical Equipment	6	EA	$0	$20,000.00		$20,000.00
	Demo Conduit & Wire	200	LF	$500	$6,000.00		$6,500.00
	Coordinate All Shutdowns with the Commissioner	2	EA	$0	$1,000.00		$1,000.00

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	Seismic Restraints	1	LS	$50	$50.00		$100.00
	Core Drill & Firestop	8	EA	$684	$3,900.00		$4,584.00
	Subtotal						**$32,184.00**
26 0519	**CONDUCTORS AND CABLES**						
	#12	1,000	LF	$2,000	$6,000.00		$8,000.00
	#8	200	LF	$500.00	$2,000.00		$2,500.00
	#2	300	LF	$2,000.00	$6,000.00		$8,000.00
	#4	300	LF	$2,000.00	$6,000.00		$8,000.00
	#2/0	1,000	LF	$10,000	$30,000.00		$40,000.00
	Subtotal						**$66,500.00**
26 0529	**SUPPORTING DEVICES (included w/ Div 26 0533)**						
26 0533	**RACEWAYS AND BOXES**						
	3/4" RGS Conduit	200	LF	$1,000	$12,000.00		$13,000.00
	1 1/4" RGS Conduit	100	LF	$1,000	$12,000.00		$13,000.00
	2" RGS Conduit	300	LF	$8,000	$24,000.00		$32,000.00
	EF Connection Conduit	30	EA	$500	$2,000.00		$2,500.00
	RTU connection conduits, sealtite, fittings, term box, etc.	30	EA	$1,500.00	$5,000.00		$6,500.00
	Subtotal						**$67,000.00**
26 0544	**SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING**						
	Painting & coating for conduit	1	LS	$1,000.00	$4,000.00		$5,000.00
	Subtotal						**$5,000.00**
26 0553	**ELECTRICAL IDENTIFICATION (included w/ Div 26 0533)**						

Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - HVAC WORK

Project: Theater for the New City - HVAC Replacement
Location: 155 First Avenue, New York, NY 10003
Bidder: Pen Enterprises Inc

DDC ID: PV791-TNC
Sponsor Agency: NYC Department of Cultural Affairs

CSI Number	Description	Quantity	Unit	Total Cost of Material	Total Cost of Labor	Total Cost of Equipment	Total Cost: Materials, Labor and Equipment
26 0800	**COMMISSIONING OF ELECTRICAL**						
	Electrical Commissioning	24	HRS	$0	$4,800.00		$4,800.00
	Subtotal						**$4,800.00**
26 0801	**ELECTRICAL TESTING**						
	Testing, Shutdown and Startup Existing	16	HRS	$0	$3,200.00		$3,200.00
	Subtotal						**$3,200.00**
26 2001	**FEEDERS AND BRANCH CIRCUITRY (included w/ Div 26 0533, Div 26 0519)**						
26 2802	**SELECTION OF OVERCURRENT DEVICES (UNIV-SWF) (included w/ Div 26 2813)**						
26 2813	**FUSES**						
	Furnish and Install 70A Fuse in Existing Switchboard	1	EA	$200	$1,000.00		$1,200.00
	Furnish and Install 125A Fuse in Existing Switchboard	2	EA	$500	$2,000.00		$2,500.00
	Subtotal						**$3,700.00**
26 2816	**ENCLOSED SWITCHES AND CIRCUIT BREAKERS**						
	Furnish and Install 20A Ckt Breaker	3	EA	$300.00	$700.00		$1,000.00
	20A Disconnect Switch	3	EA	$300.00	$700.00		$1,000.00
	100A Disconnect Switch	1	EA	$1,000.00	$2,000.00		$3,000.00
	200A Disconnect Switch	2	EA	$3,000.00	$4,000.00		$7,000.00
	Subtotal						**$12,000.00**
28 0000	**ELECTRONIC SAFETY AND SECURITY**						
28 3100	**FIRE-ALARM SYSTEM**						
	Fire Alarm System Control Panel (Labor)	1	EA		$5,000.00		$5,000.00

Department of Design and Construction

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - HVAC WORK

Project: Theater for the New City - HVAC Replacement
Location: 155 First Avenue, New York, NY 10003
Bidder: Pen Enterprises Inc

DDC ID: PV791-TNC
Sponsor Agency: NYC Department of Cultural Affairs

CSI Number	Description	Quantity	Unit	Total Cost of Material	Total Cost of Labor	Total Cost of Equipment	Total Cost: Materials, Labor and Equipment
	Fire Alarm System Pullbox		EA	N/A	N/A		N/A
	Smoke Detector - Duct (Installation Only)	7	EA		$3,500.00		$3,500.00
	FPA-A	3	EA	$1,500.00	$1,500.00		$3,000.00
	3/4" RGS Conduit	200	LF	$1,000	$8,000.00		$9,000.00
	Fire Alarm System Teflon Cable	500	LF	$1,000.00	$3,000.00		$4,000.00
	Power Feeders	100	LF	$1,000.00	$2,000.00		$3,000.00
	Cat 6 Cable to Tele/Data Demark Location	200	LF	$1,000.00	$2,000.00		$3,000.00
	System Testing and Commissioning	24	HRS	$0.00	$4,800.00		$4,800.00
	Subtotal						**$35,300.00**
	TOTAL CONTRACT 1 - HVAC WORK						**$1,411,000.00**

Per Bid Form **$ 1,411,000.00**
Excess **$0.00**

ATTACHMENT 1 – BID INFORMATION
PROJECT ID: PV791-TNC

DESCRIPTION AND LOCATION OF WORK:

Theater for the New City- HVAC Replacement
155 First Avenue
New York, NY 10003
DDC PIN: 8502020PV0004C EPIN: 85020B0075

DOCUMENTS AVAILABLE AT:

Oneline at https://biddocuments.ddcanywhere.nyc/

SUBMISSION OF BIDS BEFORE BID OPENING:

TIME TO SUBMIT:

BETWEEN 11:30 AM AND 2:00 PM:	**Thursday, March 11, 2021**

BIDS MUST BE CLOCKED IN PRIOR TO BID OPENING

PLACE TO SUBMIT:

Department of Design and Construction, Contract Section
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. Email PBQ(s) - CSB_projectinquiries@ddc.nyc.gov

BID OPENING:

LIVE VIDEO WILL STREAM VIA THE FOLLOWING LINK:	https://us02web.zoom.us/j/89571373992?pwd=K3V4Z0ROQnVDa2d0YkY5RDVQVmVKUT09
Meeting ID:	895 7137 3992
Passcode:	547063
DATE AND HOUR:	**Thursday, March 11, 2021 @ 2:30pm**
LATE BIDS WILL NOT BE ACCEPTED	

PRE-BID IN PERSON WALK THRU CONFERENCE:

PLACE:	**Theater for the New City**
	155 First Avenue
	New York, NY 10003
DATE AND HOUR:	**Wednesday, February 10, 2021 10:00am - 11:30am**
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 $1,000,000.00.

(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 amount equal to 100% of the Contract Price.

AGENCY CONTACT PERSON:

Lorraine Holley, 30-30 Thomson Avenue - First Floor, Long Island City, Queens, 11101
Telephone (718) 391-1041 Email: CSB_projectinquiries@ddc.nyc.gov

For questions about site accessibility, please contact our disability services facilitator at (718) 391-2815 or via email at accessibility@ddc.nyc.gov.

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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. This Safety Questionnaire will be reviewed as per Section V of the Safety Requirements for Construction Contracts, found in Volume 2 of the Contract.

1. Bidder Information:

Company Name: PEN ENTERPRISES INC.

DDC Project Number: PV 791 - TNC

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:

Identify the types of work that the Bidder has performed in the last three years, and the types of work that are part of this Contract.

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) Asbestos Abatement	☑	☑

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 Bidder / Contractor may obtain its EMR by contacting its insurance broker or the NCCI. If the Bidder cannot obtain its EMR, it must submit a written explanation as to why.

The Bidder 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
2018	.8	.8
2019	.8	.8
2020	.6	.8

If the Intrastate and/or Interstate EMR for any of the past three years is greater than 1.00, the Bidder / 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 a New York City Department of Buildings (NYCDOB) construction-related violation 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 (work-related in-patient hospitalization, amputation and all loss of an eye).**

The OSHA Form 300 "Log of Work-Related Injuries and Illnesses" and OSHA Form 300A "Summary of Work-Related Injuries and Illnesses" must be submitted for the last three years for Contractors with more than ten employees.

The Bidder / Contractor must indicate the total number of hours worked by its employees, as reflected in payroll records for the past three (3) years.

The Bidder / Contractor must submit the Incident Rate for Lost Time Injuries (the Incident Rate) for the past three (3) 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 Form 300 and OSHA Form 300A. The 200,000 hours represents the equivalent of 100 employees working forty hours a week, fifty (50) weeks per year.

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

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2018	5,000	0
2019	5,000	0
2020	5,000	0

If the Bidder's / 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 Bidder / 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 Fatality or an incident requiring OSHA notification within 24 hours (work-related in-patient hospitalization, amputation and all loss of an eye) on DDC Project(s) within the last three (3) years.

DDC Project Number(s): _____, _____, _____

The Bidder hereby affirms that all the information provided in this Safety Questionnaire and all additional pages and/or attachments, if applicable, consist of accurate representations.

Date: 3/16/21 By: x _____

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

Title: PRESIDENT

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) 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 – CONTRACTS COMPLETED BY THE BIDDER

List all contracts substantially completed within the last 4 years, 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
Snug Harbor Staten Island	HVAC	3,600,000	4/20	Ramona Neil DDC	646 6181703
Queens 5 GARAGE	HVAC	6,000,000	4/20	FRANSZCO OLIZ DDC	(718) 391 1372
BMCC	HVAC	2,500,000	4/19	Peter Jackson DASNY	917 453 8154
Baisley Library	HVAC	2,000,000	3/20	Pedro CASTRO DDC	347 304 0454
Marcy Library	HVAC	1,300,000	3/19	Porfirio GARCIA	347 409 1206

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
WINDSOR LIBRARY 160 E. 5TH ST. BKLYN, NY 11218	HVAC	$1,080,644	$800,000	5%	1/9/20	ALEX ALEXANDER #347-681-0808	
PS1 / MOMA 46-01 21ST ST. LIC, NY 11101	HVAC	$2,015,463.	$800,000	95%	10/20/21	CATHERINE PARK #646-306-1957	

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
George Bruce	HVAC	1,615,000	dont know	dont kno	dont know

PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the **Procurement and Sourcing Solutions Portal (PASSPort)**, a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. **Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.**

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

CONSTRUCTION EMPLOYMENT REPORT

All bidders will be required to submit a Construction Employment Report (CER) if the bid amount is $1,000,000 or greater.

The CER template form is available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Constru_Employ_Rpt.pdf

Instructions for completing the Construction Employment Report are available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Cons_Employ_Rpt_Inst.pdf

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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 Section 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.

X _____
SIGNATURE

PHILIP ETTEDGUI
PRINTED NAME

PRESIDENT
TITLE

Sworn to before me this
16 day of MARCH, 20 21

Catherine Ninive
Notary Public

Dated: 3/16/21

CATHERINE NINIVE
Commissioner of Deeds, CNY
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 20 21

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

ADDENDA CONTROL SHEET

BID OPENING DATE: March 3, 2021

PROJECT No. : PV791-TNC

TITLE: THEATER FOR THE NEW CITY – HVAC REPLACEMENT

ADDENDA ISSUED	NO. OF DWG	DATE	APPROVED BY: ARCHITECTURE/ ENGINEERING	GENERAL COUNSEL
#1 Revisions to the Bid Booklet; Revisions to Volume 2		2/9/2021		Kathy Tuznik

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

February 9, 2021

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV791-TNC

THEATER FOR THE NEW CITY – HVAC REPLACEMENT

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

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

1. **Revisions to the Bid Booklet:**
   See Attachment A.

2. **Revisions to Volume 2:**
   See Attachment B.

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) 391-1041, or by email at CSB_projectinquiries@ddc.nyc.gov.

Richard Jones, PE CWI
Executive Director, Specifications

Name of Bidder

By: _____

DDC PROJECT #: PV791-TNC

PROJECT NAME: Theater for the New City – HVAC Replacement

ATTACHMENT A – REVISIONS TO THE BID BOOKLET

Refer to the following Notices to Bidders, included with this Addendum:

- New Pre-Bid Site Visit and Conference Procedures due to COVID-19
- New Bid Submission Procedures due to COVID-19

DDC PROJECT #: PV791-TNC

PROJECT NAME: Theater for the New City – HVAC Replacement

ATTACHMENT B – REVISIONS TO VOLUME 2

Delete existing Prevailing Wage Schedule, published 7/1/2020, and replace with revised Prevailing Wage Schedule, published 1/25/2021, included with this Addendum.

Notice to Bidders

New Pre-Bid Site Visit and Conference Procedures due to Covid-19

Please be advised that there will be two Pre-Bid meetings:

1. Pre-Bid Site Visit: will be in person
    a. Refer to Attachment 1 for time, date and location.
    b. Maintain all required social distancing measures – keep at least 6 feet away from others, a mask or face covering is required.
    c. No more than two people from each potential bidding entity will be permitted to attend.
    d. The number of people entering a site location at one time will be determined at the site.
    e. PM will be on board to walk bidders through the site.
    f. Bidders are advised to write down all questions, to be discussed later at the Pre-Bid Conference.
    g. All bidders will sign in.
    h. The Pre-Bid Site Visit is optional.

2. Pre-Bid Conference: will be virtual
    a. Refer to Attachment 1 for time, date, and Zoom link.
    b. All bidders will sign in.
    c. The Pre-Bid Conference is optional.

All Pre-Bid Questions must be submitted to:
Contract Unit PBQ email address: CSB_ProjectInquiries@ddc.nyc.gov.

NOTICE TO BIDDERS -
NEW BID SUBMISSION PROCEDURES DUE TO COVID-19

The bid submission and opening procedures for this contract will follow the procedures set forth below.

THE BIDDER MUST CAREFULLY READ THE DATES AND TIMES ON ATTACHMENT 1, AS THEY NOW DIFFER FROM PREVIOUS DDC PROJECTS.

Bid Submission Procedures

1. The representative delivering the bid must maintain required social distancing measures – keep at least 6 feet away from others, and a mask or face covering must be worn.
2. The representative delivering the bid must comply with the Covid daily health screening required to enter the DDC office building at 3030 Thomson Ave. The time required to complete this screening must be accounted for in order to submit the bid on time.

   As such, please allow sufficient time for these procedures when arriving to deliver the bid so that the bid may be submitted on time.

   The screening requirements are as follows:

   Any guest visiting DDC will be required to follow the same health and safety measures as DDC staff, which includes wearing a mask and completing the daily Health Screening.

   Upon your arrival to 3030 Thomson Ave, please complete the health screen at the kiosk located by the left hand side of the security desk upon your entry. You will need to provide your name, email address and answer a few questions. Once you complete the health screening, you will need to receive a Green Readiness Score to enter our offices. Should you receive a Red Readiness Score, you will not be allowed to enter our offices. These steps are in place to ensure all precautionary safety measures are followed while in the office, as the health and safety of staff and visitors is our number one priority.

   The health screening will follow the sample screening in the following link: https://www1.nyc.gov/assets/doh/downloads/pdf/imm/covid-19-symptom-screening-businesses.pdf

   The person dropping off the bid must be able to answer all four questions in the negative.

   If there are issues dropping off the bid, the bidder should email CSB_ProjectInquiries@ddc.nyc.gov for additional instructions.
3. All bids must be delivered by hand within the time shown on Attachment 1. No bids will be accepted by mail or parcel service (USPS, FedEx, UPS, DHL, etc.).

4. Bid submissions must be in a single, sealed envelope and clearly labeled on the outside with the following:
    a. Project ID
    b. Project Name
    c. e-PIN no.
    d. Name of Contractor
    e. Contact person
    f. Email address
    g. Phone number
5. Bid submissions must not contain any staples or paper clips.
6. The ACCO staff will provide a time stamp sticker to be applied to the bid envelope.
7. Please use the link indicated on Attachment 1 to join the virtual bid opening.

NO FURTHER TEXT ON THIS PAGE

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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 paid at the apprentice rates in this schedule. Apprentices who are not so registered must be paid as journey persons in accordance with the trade classification of the work they 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.

ADDENDUM

List of Amended Classifications

1. BOILERMAKER
2. BRICKLAYER
3. CARPENTER - HIGH RISE
4. CEMENT MASON
5. ELECTRICIAN
6. ENGINEER - OPERATING
7. HEAT & FROST INSULATOR
8. HOUSE WRECKER
9. IRON WORKER - ORNAMENTAL
10. IRON WORKER - STRUCTURAL
11. MASON TENDER
12. PLASTERER - TENDER
13. PLUMBER
14. POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
15. SHEET METAL WORKER
16. SIGN ERECTOR
17. STEAMFITTER - REFRIGERATION & AIR CONDITIONER

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

Boilermaker (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $32.44

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $33.12

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.32

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $35.05

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $36.21

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $37.01

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.07

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.92

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $39.97

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $40.87

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $41.86

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $42.82

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $43.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $44.74

(Local #5)

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

Bricklayer (First 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

(Bricklayer District Council)

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

Carpenter (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $19.20
Supplemental Benefit Rate Per Hour For Building Apprentice: $15.95

Wage Rate Per Hour For Heavy Apprentice: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $22.20
Supplemental Benefit Rate Per Hour For Building Apprentice: $17.45

Wage Rate Per Hour For Heavy Apprentice: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $26.45
Supplemental Benefit Rate Per Hour For Building Apprentice: $21.05

Wage Rate Per Hour For Heavy Apprentice: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $34.33
Supplemental Benefit Rate Per Hour For Building Apprentice: $23.05

Wage Rate Per Hour For Heavy Apprentice: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Ratio of Apprentice to Journeyperson: 1 to 1, 2 to 5)

Carpenter - High Rise (First Year)

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $17.52
Supplemental Benefit Rate per Hour: $16.30

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $18.27
Supplemental Benefit Rate per Hour: $16.55

Carpenter - High Rise (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.95
Supplemental Benefit Rate per Hour: $16.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.70
Supplemental Benefit Rate per Hour: $16.68

Carpenter - High Rise (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $30.53
Supplemental Benefit Rate per Hour: $16.56

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $31.28
Supplemental Benefit Rate per Hour: $16.81

Carpenter - High Rise (Fourth Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.15
Supplemental Benefit Rate per Hour: $16.71

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $38.90
Supplemental Benefit Rate per Hour: $16.96

(Carpenters District Council)

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

Cement Mason (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $19.57
Supplemental Benefit Rate per Hour: $15.61

Cement Mason (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.40
Supplemental Benefit Rate per Hour: $15.91

Cement Mason (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.68
Supplemental Benefit Rate per Hour: $16.02

(Local #780)

CEMENT AND CONCRETE WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Cement & Concrete Worker (First 1333 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 53% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.29

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 69% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $19.22

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.30

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

(Carpenters District Council)

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

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $16.50
Supplemental Benefit Rate per Hour: $14.54
Overtime Supplemental Rate Per Hour: $15.63

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $17.25
Supplemental Benefit Rate per Hour: $14.93
Overtime Supplemental Rate Per Hour: $16.07

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021

Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $14.80
Overtime Supplemental Rate Per Hour: $15.93

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $17.75
Supplemental Benefit Rate per Hour: $15.19
Overtime Supplemental Rate Per Hour: $16.36

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $18.00
Supplemental Benefit Rate per Hour: $15.31
Overtime Supplemental Rate Per Hour: $16.51

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $18.75
Supplemental Benefit Rate per Hour: $15.70
Overtime Supplemental Rate Per Hour: $16.95

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $19.00
Supplemental Benefit Rate per Hour: $15.83
Overtime Supplemental Rate Per Hour: $17.09

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $19.75
Supplemental Benefit Rate per Hour: $16.22
Overtime Supplemental Rate Per Hour: $17.53

Electrician (Third Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $20.00
Supplemental Benefit Rate per Hour: $16.35
Overtime Supplemental Rate Per Hour: $17.68

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $20.75
Supplemental Benefit Rate per Hour: $16.74
Overtime Supplemental Rate Per Hour: $18.11

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $21.00
Supplemental Benefit Rate per Hour: $16.87

Overtime Supplemental Rate Per Hour: $18.26

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $21.75
Supplemental Benefit Rate per Hour: $17.26
Overtime Supplemental Rate Per Hour: $18.70

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $22.00
Supplemental Benefit Rate per Hour: $17.38
Overtime Supplemental Rate Per Hour: $18.84

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $22.75
Supplemental Benefit Rate per Hour: $17.77
Overtime Supplemental Rate Per Hour: $19.28

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $24.00
Supplemental Benefit Rate per Hour: $18.42
Overtime Supplemental Rate Per Hour: $20.01

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $24.75
Supplemental Benefit Rate per Hour: $18.81
Overtime Supplemental Rate Per Hour: $20.45

Electrician (Fifth Term: 0-12 Months)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $26.00
Supplemental Benefit Rate per Hour: $22.06
Overtime Supplemental Rate Per Hour: $23.70

Electrician (Fifth Term: 13-18 Months)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $24.45
Overtime Supplemental Rate Per Hour: $26.38

Overtime Description
Overtime Wage paid at time and one half the regular rate

(Local #3)

ELEVATOR CONSTRUCTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.14

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.76

Elevator (Constructor) - Second Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.67

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $33.31

Elevator (Constructor) - Third Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.74

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $34.42

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.80

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $35.52

(Local #1)

ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.09

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.71

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.62

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.26

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.67

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.35

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.73

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $35.45

(Local #1)

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

Engineer - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $25.38
Supplemental Benefit Rate per Hour: $26.69

Engineer - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.72
Supplemental Benefit Rate per Hour: $26.69

Engineer - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.89
Supplemental Benefit Rate per Hour: $26.69

Engineer - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $38.06
Supplemental Benefit Rate per Hour: $26.69

(Local #15)

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

Operating Engineer - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour 40% of Journeyperson's Rate

Supplemental Benefit Per Hour: $23.45

Operating Engineer - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's Rate
Supplemental Benefit Per Hour: $23.45

Operating Engineer - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $23.45

(Local #14)

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

Floor Coverer (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $24.20
Supplemental Benefit Rate per Hour: $15.95

Floor Coverer (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.20
Supplemental Benefit Rate per Hour: $17.45

Floor Coverer (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.45
Supplemental Benefit Rate per Hour: $21.05

Floor Coverer (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $39.33
Supplemental Benefit Rate per Hour: $23.05

(Carpenters District Council)

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

Glazier (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Glazier (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Glazier (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Glazier (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3)

Handler (First 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 78% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Second 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Third 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Fourth 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 89% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

(Local #78)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 35% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

(Local #12)

HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

House Wrecker - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Third Year

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Ten Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $40.20

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $41.44

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $42.68

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate

Supplemental Rate Per Hour: $45.17

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $47.65

Iron Worker (Ornamental) - First Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $21.13
Supplemental Benefit Rate per Hour: $17.61

Iron Worker (Ornamental) - Second Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.77
Supplemental Benefit Rate per Hour: $18.86

Iron Worker (Ornamental) - Third Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $28.40
Supplemental Benefit Rate per Hour: $20.12

Iron Worker (Ornamental) - Fourth Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $32.06
Supplemental Benefit Rate per Hour: $21.38

(Local #580)

IRON WORKER - STRUCTURAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $27.45
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $27.83
Supplemental Benefit Rate per Hour: $56.37

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $28.05
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $28.43
Supplemental Benefit Rate per Hour: $56.37

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $28.66
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.04
Supplemental Benefit Rate per Hour: $56.37

(Local #40 and #361)

LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)
(Ratio Apprentice to Journeyperson: 1 to 1, 1 to 3)

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

(Local #731)

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

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Cutters & Setters - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Seventh 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Cutters & Setters - Eighth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Ninth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Cutters & Setters - Tenth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

Polishers & Finishers - First 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Polishers & Finishers - Second 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

Polishers & Finishers - Third 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Local #79)

METALLIC LATHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metallic Lather (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.55
Supplemental Benefit Rate per Hour: $17.87

Metallic Lather (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.38
Supplemental Benefit Rate per Hour: $20.66

Metallic Lather (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.68
Supplemental Benefit Rate per Hour: $21.32

Metallic Lather (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $21.82

(Local #46)

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

Millwright (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.99
Supplemental Benefit Rate per Hour: $34.94

Millwright (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $35.44
Supplemental Benefit Rate per Hour: $38.64

Millwright (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.89
Supplemental Benefit Rate per Hour: $42.99

Millwright (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $51.79
Supplemental Benefit Rate per Hour: $49.75

(Local #740)

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

Painter - Brush & Roller - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.20
Supplemental Benefit Rate per Hour: $15.93

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $20.49

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $25.80
Supplemental Benefit Rate per Hour: $24.11

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.40
Supplemental Benefit Rate per Hour: $30.93

(District Council of Painters)

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

Metal Polisher (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $16.00
Supplemental Benefit Rate per Hour: $6.66

Metal Polisher (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $6.66

Metal Polisher (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $18.00
Supplemental Benefit Rate per Hour: $6.66

(Local 8A-28)

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

Painters - Structural Steel (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #806)

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

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.36
Supplemental Benefit Rate per Hour: $22.50

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.00
Supplemental Benefit Rate per Hour: $22.50

(Local #1010)

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

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $13.88

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $14.36

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $16.44

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $17.53

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $19.72

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $20.81

(Local #530)

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

Plasterer Tender - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Local #79)

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

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $16.28
Supplemental Benefit Rate per Hour: $5.43

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate per Hour: **$16.78**
Supplemental Benefit Rate per Hour: **$5.43**

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$19.28**
Supplemental Benefit Rate per Hour: **$6.43**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$19.78**
Supplemental Benefit Rate per Hour: **$6.43**

Plumber - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$27.91**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$28.16**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$30.01**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$30.26**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$32.86**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$33.11**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$34.26**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $34.51
Supplemental Benefit Rate per Hour: $20.38

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $46.33
Supplemental Benefit Rate per Hour: $20.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $46.58
Supplemental Benefit Rate per Hour: $20.38

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $27.14
Supplemental Benefit Rate per Hour: $14.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $27.90
Supplemental Benefit Rate per Hour: $14.70

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $19.24

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $31.41
Supplemental Benefit Rate per Hour: $19.67

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $36.10
Supplemental Benefit Rate per Hour: $21.99

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.24
Supplemental Benefit Rate per Hour: $22.42

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.46
Supplemental Benefit Rate per Hour: $22.99

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.83
Supplemental Benefit Rate per Hour: $23.42

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $3.51

Roofer - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $17.54

Roofer - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.99

Roofer - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $26.18

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Sheet Metal Worker (0-6 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.51

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.76

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $19.11

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $19.55

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $26.09

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $26.65

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.81

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.50

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.81

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.50

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $37.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.78

Sheet Metal Worker (49-54 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $37.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.78

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $42.65

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $43.65

(Local #28)

SIGN ERECTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $16.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $16.51

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $18.29

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $18.74

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $20.47

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $20.96

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $22.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $23.21

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.68

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.44

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $33.38

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $34.20

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $36.84

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $37.76

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $39.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $40.62

Sign Erector - Fifth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $42.38

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $43.44

Sign Erector - Sixth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $45.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $46.27

(Local #137)

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

Steamfitter - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STEAMFITTER - REFRIGERATION & AIR CONDITIONER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Refrigeration & Air Conditioner (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.63
Supplemental Benefit Rate per Hour: $12.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.75
Supplemental Benefit Rate per Hour: $12.99

Refrigeration & Air Conditioner (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $24.89
Supplemental Benefit Rate per Hour: $13.25

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $25.04
Supplemental Benefit Rate per Hour: $14.23

Refrigeration & Air Conditioner (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $14.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.17
Supplemental Benefit Rate per Hour: $15.53

Refrigeration & Air Conditioner (Fourth Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $35.01
Supplemental Benefit Rate per Hour: $16.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $35.22
Supplemental Benefit Rate per Hour: $17.29

(Local #638-B)

STONE MASON - SETTER
(Ratio Apprentice of Journeyperson: 1 to 1, 1 to 2)

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

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

Drywall Taper - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

TILE LAYER - SETTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

(Local #1536)

LABOR LAW ARTICLE 8 - NYC PUBLIC WORKS

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 New York Labor Law Article 8 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 projects. Prevailing rates are required to be annexed to and form part of the public work contract pursuant to Labor Law section 220 (3).

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 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 work contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public work contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public work 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 work contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-4443. All callers must have the agency name and contract registration number available when calling with questions on public work 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 651, New York, N.Y. 10007; Fax (212) 669-4002.

Pursuant to Labor Law § 220 (3-a) (a), the appropriate schedule of prevailing wages and benefits must be posted in a prominent and accessible place at all public work sites along with the Construction Poster provided on our web site at comptroller.nyc.gov/wages. In addition, covered employees must be given the appropriate schedule of prevailing wages and benefits along with the Worker Notice provided on our web site at the time the public work project begins, and with the first paycheck to each such employee after July first of each year.

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site comptroller.nyc.gov/wages. 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 comptroller.nyc.gov/wages.

Prevailing rates and ratios for apprentices are published in the Construction Apprentice Prevailing Wage Schedule. 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 paid at the apprentice rates. Apprentices who are not so registered must be paid as journey persons.

New York City public work projects 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:

https://www1.nyc.gov/site/mocs/legal-forms/project-labor-agreements.page

All the provisions of Labor Law Article 8 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller in accordance with the trade classifications in this schedule; 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 fringe 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 fringe benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.**

Although prevailing wage laws do not require employers to provide bona fide fringe benefits (as opposed to wage supplements) to their employees, other laws may. For example, the Employee Retirement Income Security Act, 29 U.S.C. § 1001 et seq., the Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 et seq., and the New York City Paid Sick Leave Law, N.Y.C. Admin. Code § 20-911 et seq., require certain employers to provide certain benefits to their employees. Labor agreements to which employers are a party may also require certain benefits. The Comptroller's Office does not enforce these laws or agreements.

Employers must provide prevailing supplemental benefits at the straight time rate for each hour worked unless otherwise noted in the classification.

Paid Holidays, Vacation and Sick Leave when listed must be paid or provided in addition to the prevailing hourly supplemental benefit rate.

For more information, please refer to the Comptroller's Prevailing Wage Law Regulations in Title 44 of the Rules of the City of New York, Chapter 2, available at comptroller.nyc.gov/wages.

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

ADDENDUM

List of Amended Classifications

1. BOILERMAKER
2. BRICKLAYER
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4. CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST
5. CEMENT MASON
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7. DERRICKPERSON AND RIGGER
8. DRIVER: TRUCK (TEAMSTER)
9. ELECTRICIAN
10. ELECTRICIAN-STREET LIGHTING WORKER
11. ENGINEER - OPERATING
12. GLAZIER
13. HOUSE WRECKER
14. IRON WORKER - ORNAMENTAL
15. IRON WORKER - STRUCTURAL
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18. MASON TENDER (INTERIOR DEMOLITION WORKER)
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23. PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)
24. POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
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29. STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
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ASBESTOS HANDLER
SEE HAZARDOUS MATERIAL HANDLER

BLASTER

Blaster

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $56.21
Supplemental Benefit Rate per Hour: $46.63

Blaster- Hydraulic Trac Drill

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.35
Supplemental Benefit Rate per Hour: $46.63

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $49.52
Supplemental Benefit Rate per Hour: $46.63

Blaster - Journeyperson

(Laborer, Chipper/Jackhammer including Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers and Hydro (Water) Demolition, Powder Carrier, Hydraulic Chuck Tender, Chuck Tender and Nipper)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $46.63

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $46.63

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
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)

BOILERMAKER

Boilermaker

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $61.24
Supplemental Benefit Rate per Hour: $45.62
Supplemental Note: For time and one half overtime - $67.98 For double overtime - $90.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $63.38
Supplemental Benefit Rate per Hour: $46.67
Supplemental Note: For time and one half overtime - $69.56 For double overtime - $92.44

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

On jobs requiring two (2) or three (3) shifts, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work eight (8) hours and receive eight hours at the regular straight time hourly rate plus two dollars ($2.00) per hour. The third shift shall work eight (8) hours and receive eight hours at the regular straight time hourly rate plus two dollars and twenty-five cents ($2.25) per hour.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.32
Supplemental Benefit Rate per Hour: $33.11

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.49
Supplemental Benefit Rate per Hour: $34.30

Overtime Description

Time and one half the regular rate after a 7 hour day. If working on a job that is predominately Pointer, Cleaner, Caulker work, then Time and one half the regular rate after an 8 hour day.

Overtime

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

Overtime Holidays

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

Paid Holidays

None

Shift Rates

The second shift wage rate shall be a 15% wage premium with no premium for supplemental benefits. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, eight hours will be paid at straight time rate for seven hours of work.

(Bricklayer District Council)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.00
Supplemental Benefit Rate per Hour: $46.88

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
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. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - HEAVY CONSTRUCTION WORK
(Construction of Engineered Structures and Building Foundations including all form work)

Heavy Construction Work

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.93
Supplemental Benefit Rate per Hour: $52.49

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

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

Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate. When two (2) or more shifts of Carpenters are employed, single time will be paid for each shift.

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Excludes Engineered Structures and Building Foundations)

Carpenter High Rise A

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $43.44

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $44.38

Carpenter High Rise B

Carpenter High Rise B worker is excluded from high risk operations such as erection decking, perimeter debris netting, leading edge work, self-climbing form systems, and the installation of cocoon systems unless directly supervised by a Carpenter High Rise A worker.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $16.75

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $17.75

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

Time and one half 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

None

Shift Rates

The second shift wage rate shall be 113% of the straight time hourly wage rate. However, any shift beginning after 5:00 P.M. shall be paid at time and one half the regular hourly rate. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $51.50
Supplemental Benefit Rate per Hour: $46.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.50
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
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. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - WOOD WATER STORAGE TANK

Tank Mechanic

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $35.21
Supplemental Benefit Rate per Hour: $21.03

Tank Helper

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.97
Supplemental Benefit Rate per Hour: $21.03

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
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Day after Thanksgiving
1/2 day on Christmas Eve if work is performed in the A.M.
Christmas Day
1/2 day on New Year's Eve if work is performed in the A.M.

Vacation

Employed for one (1) year.....one (1) week vacation (40 hours)
Employed for three (3) years.....two (2) weeks vacation (80 hours)
Employed for more than twenty (20) years.....three (3) weeks vacation (120 hours)

SICK LEAVE:
Two (2) sick days after being employed for twenty (20) years.

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.28
Supplemental Benefit Rate per Hour: $29.20
Supplemental Note: $32.70 on Saturdays; $36.20 on Sundays & Holidays

Cement & Concrete Worker - (Hired after 2/6/2016)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $21.20
Supplemental Note: $22.70 on Saturdays; $24.20 on Sundays & Holidays

Overtime Description

Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

Overtime

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

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

Paid Holidays
1/2 day before Christmas Day
1/2 day before New Year's Day

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

(Cement Concrete Workers District Council)

CEMENT MASON

Cement Mason

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.97
Supplemental Benefit Rate per Hour: $40.56
Supplemental Note: Supplemental benefit time and one half rate: $71.19; Double time rate: double the base supplemental benefit rate.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.77
Supplemental Benefit Rate per Hour: $41.01
Supplemental Note: Supplemental benefit time and one half rate: $71.97; Double time rate: double the base supplemental benefit rate.

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. Four Days a week at Ten (10) hours straight time is allowed.

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 off shift 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.

(Local #780) (BCA)

CORE DRILLER

Core Driller

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $41.19
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $41.74
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $32.62
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $32.92
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $29.36

Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.63
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.10
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.34
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.83
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.04
Supplemental Benefit Rate per Hour: $29.40

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
When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents ($0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $53.13
Supplemental Benefit Rate per Hour: $54.60
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $56.02 - For work performed in Staten Island.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $53.99
Supplemental Benefit Rate per Hour: $55.10
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $56.52 - For work performed in Staten Island.

Derrick Person & Rigger - Site Work

Assists the Stone Mason-Setter in the setting of stone and paving stone.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.02
Supplemental Benefit Rate per Hour: $43.12

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.86
Supplemental Benefit Rate per Hour: $43.37

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.80
Supplemental Benefit Rate per Hour: $52.49

Diver Tender (Marine)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.34
Supplemental Benefit Rate per Hour: $52.49

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.93
Supplemental Benefit Rate per Hour: $52.49

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

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

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Dump Truck

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $41.18
Supplemental Benefit Rate per Hour: $49.65
Supplemental Note: Over 40 hours worked: at time and one half rate - $22.08; at double time rate - $29.44

Driver - Tractor Trailer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.06
Supplemental Benefit Rate per Hour: $50.56
Supplemental Note: Over 40 hours worked: at time and one half rate - $21.61; at double time rate - $28.82

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.62
Supplemental Benefit Rate per Hour: $50.56
Supplemental Note: Over 40 hours worked: at time and one half rate - $21.61; at double time rate - $28.82

Overtime Description
For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay. For Thanksgiving week, the prorated share shall be 5 1/3 hours of holiday pay for each day worked in Thanksgiving week.

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

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
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 shift work commencing between 6:00 P.M. and 4:30 A.M. shall work eight and one half (8 1/2) 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $39.00
Supplemental Benefit Rate per Hour: $45.52
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $40.37
Supplemental Benefit Rate per Hour: $45.84
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Overtime Description

For Paid Holidays: Employees who do not work on a contractual holiday shall be compensated two (2) hours extra pay in straight time wages and benefits for every day on which the Employee does not pass up a day's work during the calendar week (Sunday through Saturday) of the holiday, up to a maximum of ten (10) hours in wages and eight (8) hours in benefit contributions 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.

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 installation of low voltage cabling carrying data, video and/or voice on building construction/alteration/renovation projects.)

Electrician "A" (Regular Day / Day Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $58.46

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $54.86
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Regular Day Overtime after 7 hrs / Day Shift Overtime after 8 hrs)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $87.00
Supplemental Benefit Rate per Hour: $62.12

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $87.00
Supplemental Benefit Rate per Hour: $56.73
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Swing Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $68.05
Supplemental Benefit Rate per Hour: $66.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $68.05
Supplemental Benefit Rate per Hour: $62.39

*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $102.08
Supplemental Benefit Rate per Hour: $70.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $102.08
Supplemental Benefit Rate per Hour: $64.58
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $76.23
Supplemental Benefit Rate per Hour: $73.47

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $76.23
Supplemental Benefit Rate per Hour: $68.74
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $114.35
Supplemental Benefit Rate per Hour: $78.28

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $114.35
Supplemental Benefit Rate per Hour: $71.19
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

* Supplemental Benefit Rate per Hour Note

In addition to the Supplemental Benefit Rates per Hour listed above, the employer must provide an additional 6.2% of taxable gross pay earned on covered work only. This additional Supplemental Benefit Rate will terminate when the employee has contributed the maximum annual Social Security tax required by law, on all work performed.

Overtime

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

Overtime Holidays

Time and one half the regular rate for work on a holiday.
New Year's Day
Martin Luther King Jr. Day

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

Paid Holidays

None

Shift Rates

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 $25.46.

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $24.45
First and Second Year "M" Wage Rate Per Hour: $26.00
First and Second Year "M" Supplemental Rate: $22.06

Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.75
Supplemental Benefit Rate per Hour: $26.38
First and Second Year "M" Wage Rate Per Hour: $39.00
First and Second Year "M" Supplemental Rate: $23.70

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $33.90
Supplemental Benefit Rate per Hour: $18.43
Supplemental Note: $16.80 only after 8 hours worked in a day

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

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half 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 8:30 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: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $60.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $56.83
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $43.16
Supplemental Benefit Rate per Hour: $44.83

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.16
Supplemental Benefit Rate per Hour: $42.15

*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $37.11
Supplemental Benefit Rate per Hour: $40.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.11
Supplemental Benefit Rate per Hour: $38.04
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

* Supplemental Benefit Rate per Hour Note

In addition to the Supplemental Benefit Rates per Hour listed above, the employer must provide an additional 6.2% of taxable gross pay earned on covered work only. This additional Supplemental Benefit Rate will terminate when the employee has contributed the maximum annual Social Security tax required by law, on all work performed.

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: 7/1/2020 - 3/16/2021
Wage Rate per Hour: $69.56
Supplemental Benefit Rate per Hour: $37.47

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate per Hour: $72.29
Supplemental Benefit Rate per Hour: $38.29

Overtime Description
For New Construction: work performed after an 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: 7/1/2020 - 3/16/2021
Wage Rate per Hour: $54.56
Supplemental Benefit Rate per Hour: $37.37

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate per Hour: $56.77
Supplemental Benefit Rate per Hour: $38.19

Overtime Description
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

Cherrypickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $72.93
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $116.69

Engineer - Heavy Construction Operating Engineer II

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls: Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.74
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $113.18

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $67.06
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $107.30

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.40
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $112.64

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $92.76
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $148.42

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.12
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $73.79

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.34
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $75.74

Engineer - Heavy Construction Service Engineer

Gradalls: Concrete Pumps: Power Houses: Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.37
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $101.39

Engineer - Heavy Construction Service Mechanic

Shovels: Cranes: Draglines: Backhoes: Keystones: Pavers: Trenching Machines: Gunite Machines: Compressors (three (3) or more in Battery): Crawler Cranes- having a straight lattice boom with no attachment or luffing boom, no jib and no auxiliary attachment.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.54
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $69.66

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $65.31
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $104.50

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $61.05
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $97.68

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.18
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $73.89

Overtime Description

On jobs of more than one shift, if the next shift employee fails to report for work through any cause over which the employer has no control, the employee on duty who works the next shift continues to work at the single time rate.

Overtime

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

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

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

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Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.45
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $48.26
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $59.33
Supplemental Benefit Rate per Hour: $39.74

Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers II

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.78
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Overtime Description
On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
When two (2) or more shifts are employed, single time will be paid for each shift.

(Local #15)

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.41
Supplemental Benefit Rate per Hour: $22.75

Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $33.13
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.54
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $65.44
Supplemental Benefit Rate per Hour: $35.12

Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.83
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $32.84
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $76.22

Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.85 per hour (time & one half), $68.15 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.96
Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.58 per hour (time & one half), $68.15 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.94
Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.85 per hour (time & one half), $68.15 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $69.15
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $53.88
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.04
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $84.47

Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $135.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $83.41
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $133.46

Operating Engineer - Road & Heavy Construction II

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.39
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $139.82

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.33
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $138.13

Operating Engineer - Road & Heavy Construction III

Mine Hoists (Cranes, etc. when used as Mine Hoists)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $90.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $144.24

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $89.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $142.54

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $88.02
Supplemental Benefit Rate per Hour: $32.95

Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $140.83

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.96
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $139.14

Operating Engineer - Road & Heavy Construction V

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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $86.31
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $138.10

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $85.25
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $136.40

Operating Engineer - Road & Heavy Construction VI

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $131.33

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.02
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $129.63

Operating Engineer - Road & Heavy Construction VII

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $66.62
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Off-Shift Wage Rate: $106.59

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $65.56
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $104.90

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $65.21

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.02
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $64.15

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $78.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $125.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $77.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $123.34

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $71.97
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $115.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $70.91
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $113.46

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.26
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $90.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.20
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $88.32

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.94
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $132.70

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.88
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $131.01

Operating Engineer - Road & Heavy Construction XIII

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $80.38
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $128.61

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate per Hour: $79.32
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $126.91

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $76.91
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $123.06

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $75.85
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $121.36

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.41
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $83.86

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.35
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $82.16

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $73.53
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $117.65

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $72.47
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $115.95

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $74.07
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $118.51

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $73.01
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $116.82

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $105.59
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $168.94

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $104.53
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $167.25

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $131.33

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.02

Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $129.63

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $80.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $128.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $78.95
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $126.32

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $67.92
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $108.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $66.86
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $106.98

Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.64
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.58
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.80
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.74
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $70.36
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $69.30
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $90.61
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $144.98

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $89.55
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $143.28

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.12

Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $139.39

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.06
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $137.70

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.37
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $83.79

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.31
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $82.10

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.93
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $79.89

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.87
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $78.19

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $69.51
Supplemental Benefit Rate per Hour: $32.95

Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $68.45
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.21
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.15
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $79.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.39
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work IV

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $83.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.19
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $77.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $76.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $76.35
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $75.29
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
For New House Car projects Wage Rate per Hour $48.70

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $59.78
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
For New House Car projects Wage Rate per Hour $47.64

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
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
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
When two (2) or more shifts are employed, single time will be paid for each shift.
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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.00
Supplemental Benefit Rate per Hour: $46.88

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
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Day before Christmas
Christmas Day
Day before New Year's Day

Shift Rates

Two shifts may be utilized with the first shift working 8 a.m. to the end of the shift at straight time rate of pay. The wage rate for the second shift consisting of 7 hours shall be paid at 114.29% of straight time wage rate. The wage rate for the second shift consisting of 8 hours shall be paid 112.5% of the straight time wage rate. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

GLAZIER
(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $46.55
Supplemental Benefit Rate per Hour: $45.34
Supplemental Note: Supplemental Benefit Overtime Rate: $68.03

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $46.55
Supplemental Benefit Rate per Hour: $46.54
Supplemental Note: Supplemental Benefit Overtime Rate: $69.83

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

Shift Rates
Shifts shall be any 8 consecutive hours after the normal working day for which the Glazier shall receive 9 hours pay for 8 hours worked.

(Local #1281)

GLAZIER - REPAIR & MAINTENANCE
(For the Installation of Glass - All repair and maintenance work on a particular building.)

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $26.02
Supplemental Benefit Rate per Hour: $23.19

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 rate for work on the following holiday(s).
Time and one half the regular hourly rate after 40 straight time 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
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Removal, abatement, encapsulation or decontamination of asbestos, lead, mold, or other toxic or hazardous waste/materials)

Handler

Effective Period: 7/1/2020 - 9/6/2020
Wage Rate per Hour: $37.50
Supplemental Benefit Rate per Hour: $16.95

Effective Period: 9/7/2020 - 6/30/2021
Wage Rate per Hour: $38.05
Supplemental Benefit Rate per Hour: $17.75

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 straight time 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)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.01
Supplemental Benefit Rate per Hour: $41.16

Overtime Description
Double time shall be paid for supplemental benefits during overtime work.
8th hour paid at time and one half.

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
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. There must be a first shift to work the second shift, and a second shift to work the third shift. Off-hour jobs in occupied buildings may be worked on weekdays with an increment of one-dollar ($1.00) per hour and eight (8) hours pay for seven (7) hours worked.

(Local #12) (BCA)

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $30.07

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.63
Supplemental Benefit Rate per Hour: $30.47

House Wrecker - Tier B

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.41
Supplemental Benefit Rate per Hour: $22.48

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.86
Supplemental Benefit Rate per Hour: $22.88

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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $45.65
Supplemental Benefit Rate per Hour: $57.62
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.90
Supplemental Benefit Rate per Hour: $58.62
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
When two or three shifts are employed on a job, Monday through Friday, the second and third shift are paid eight and one half (8 ½) hours at the straight time rate for seven (7) hours of work, and ten (10) hours at the straight time rate for eight (8) hours of work. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, eight hours will be paid at straight time rate for seven hours of work, and all overtime shall be paid at time and one-half the regular straight time rates but on Sundays and Holidays, time and one-half the regular straight time rate shall be paid for all work up to seven (7) hours and double time shall be paid for all work thereafter.

(Local #580)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.70
Supplemental Benefit Rate per Hour: $80.82
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $53.45
Supplemental Benefit Rate per Hour: $81.82
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

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

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
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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.

(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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $46.63

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
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 Green Infrastructure projects, the planting of street trees and trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

Landscaper (Year 6 and above)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $32.80
Supplemental Benefit Rate per Hour: $16.55

Landscaper (Year 3 - 5)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.74
Supplemental Benefit Rate per Hour: $16.55

Landscaper (up to 3 years)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.08
Supplemental Benefit Rate per Hour: $16.55

Groundperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.08
Supplemental Benefit Rate per Hour: $16.55

Tree Remover / Pruner

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $38.14
Supplemental Benefit Rate per Hour: $16.55

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.48
Supplemental Benefit Rate per Hour: $16.55

Watering - Plant Maintainer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.12
Supplemental Benefit Rate per Hour: $16.55

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
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $55.35
Supplemental Benefit Rate per Hour: $41.26

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.89
Supplemental Benefit Rate per Hour: $41.66

Marble Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.37

Supplemental Benefit Rate per Hour: $38.71

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.72
Supplemental Benefit Rate per Hour: $38.96

Marble Polisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $41.41
Supplemental Benefit Rate per Hour: $30.93

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $42.12
Supplemental Benefit Rate per Hour: $31.31

Marble Maintenance Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $25.53
Supplemental Benefit Rate per Hour: $13.46

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.10
Supplemental Benefit Rate per Hour: $13.56

Overtime Description
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
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $39.20
Supplemental Benefit Rate per Hour: $31.24

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

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

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate. When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Local #79)

MASON TENDER (INTERIOR DEMOLITION WORKER)

Mason Tender Tier A

Tier A Interior Demolition Worker performs all burning, chopping, and other technically skilled tasks related to interior demolition work.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $36.84
Supplemental Benefit Rate per Hour: $24.90

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.29
Supplemental Benefit Rate per Hour: $25.25

Mason Tender Tier B

Tier B Interior Demolition Worker performs manual work and work incidental to demolition work, such as loading and carting of debris from the work site to an area where it can be loaded in to bins/trucks for removal. Also performs clean-up of the site when demolition is completed.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.03
Supplemental Benefit Rate per Hour: $19.22

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.48
Supplemental Benefit Rate per Hour: $19.57

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

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

Paid Holidays
None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.25
Supplemental Benefit Rate per Hour: $48.15
Supplemental Note: For time and one half overtime - $59.40 For double overtime - $74.65

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.

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
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
Off-shift work outside of normal working hours shall receive straight time rate plus $12 per hour for the first seven (7) or eight (8) hours.

(Local #46)

MILLWRIGHT

Millwright

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.70
Supplemental Benefit Rate per Hour: $54.31

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

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Veteran's 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
Second shift receives the straight time rate of pay plus fifteen (15%) percent allowing for one half hour for a meal. 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%) percent for weekday hours.

(Local #740)

MOSAIC MECHANIC

Mosaic Mechanic - Mosaic & Terrazzo Mechanic

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.82
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.32
Supplemental Benefit Rate per Hour: $43.17

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.22
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.72
Supplemental Benefit Rate per Hour: $43.17

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.22
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.72
Supplemental Benefit Rate per Hour: $43.17

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $34.70
Supplemental Note: $40.99 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.00
Supplemental Benefit Rate per Hour: $34.70
Supplemental Note: $ 40.99 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 - LINE STRIPING (ROADWAY)

Striping - Machine Operator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.00
Supplemental Benefit Rate per Hour: $13.37
Supplemental Note: Overtime Supplemental Benefit rate - $15.00

Lineperson (Thermoplastic)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.00

Supplemental Benefit Rate per Hour: $13.37
Supplemental Note: Overtime Supplemental Benefit rate - $15.00

Overtime Description

Time and one half the regular rate for all work in excess of ten (10) straight time hours per day and in excess of forty (40) straight time hours per week.

For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the regularly scheduled workday before and after the holiday.

Overtime

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
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

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.

(Local #1010)

PAINTER - METAL POLISHER

METAL POLISHER

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.08
Supplemental Benefit Rate per Hour: $9.59

METAL POLISHER - NEW CONSTRUCTION

Effective Period: 7/1/2020 - 6/30/2021

Wage Rate per Hour: **$32.03**
Supplemental Benefit Rate per Hour: **$9.59**

METAL POLISHER - SCAFFOLD OVER 34 FEET

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: **$34.58**
Supplemental Benefit Rate per Hour: **$9.59**

Overtime Description
All work performed on Saturdays shall be paid at time-in-a half. The exception being; for suspended scaffold work and work deemed as a construction project; an eight (8) hour shift lost during the week due to circumstances beyond the control of the employer, up to a maximum of eight (8) hours per week, may be worked on Saturday at the straight time rate.

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

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Four Days a week at Ten (10) hours straight a day.

Local 8A-28A

PAINTER - SIGN

Sign Painter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: **$43.13**

Supplemental Benefit Rate per Hour: $21.13

Assistant Sign Painter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.65
Supplemental Benefit Rate per Hour: $19.40

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

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation
At least 1 year of employment.....1 week
2 years or more of employment.....2 weeks
8 years or more of employment.....3 weeks

(Local #8A-28A)

PAINTER - STRUCTURAL STEEL

Painters on Structural Steel

Effective Period: 7/1/2020 - 9/30/2020
Wage Rate per Hour: $50.25
Supplemental Benefit Rate per Hour: $46.53

Effective Period: 10/1/2020 - 6/30/2021
Wage Rate per Hour: $51.50
Supplemental Benefit Rate per Hour: $48.28

Painter - Power Tool

Effective Period: 7/1/2020 - 9/30/2020
Wage Rate per Hour: $56.25
Supplemental Benefit Rate per Hour: $46.53
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

Effective Period: 10/1/2020 - 6/30/2021
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $48.28
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

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
Second shift is paid at regular hourly wage rates plus a ten percent (10%) differential. There must be a first shift in order to work a second shift.

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.00
Supplemental Benefit Rate per Hour: $36.36
Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

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

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

Paid Holidays
None

Shift Rates
Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters #9)

PAVER AND ROADBUILDER

Paver & Roadbuilder - Formsetter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.35
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

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 for installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry/seal coating, paving stones, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.48
Supplemental Benefit Rate per Hour: $46.71

Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Production Paver & Roadbuilder - Screed Person

(Production paving is asphalt paving when using a paving machine or on a project where a paving machine is traditionally used)

Adjustment of paving machinery on production paving jobs.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.95
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.35
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.48
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Overtime Description
If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

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.

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).
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day

Paid Holidays

Memorial Day
Independence Day
Labor 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 at the straight time rate 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 10% over the single time rate for the screed person, rakers and shovelers directly involved only. This differential is to be paid when there is only one shift and the shift works at night. 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $45.73
Supplemental Benefit Rate per Hour: $27.37

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.73
Supplemental Benefit Rate per Hour: $30.37

Overtime

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

Overtime Holidays

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

Paid Holidays
None

Shift Rates
When it is not possible to conduct work during regular working hours (between 6:30am and 4:30pm), a shift differential shall be paid at the regular hourly rate plus a twelve per cent (12%) per hour differential. Workers on shift work shall be allowed a paid one-half hour meal break.

(Local #262)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $39.20
Supplemental Benefit Rate per Hour: $31.24

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $70.35
Supplemental Benefit Rate per Hour: $37.85
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $70.85
Supplemental Benefit Rate per Hour: $38.35
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.36
Supplemental Benefit Rate per Hour: $30.20

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.76
Supplemental Benefit Rate per Hour: $30.60

Overtime

Double time 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

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 (MECHNICAL EQUIPMENT AND SERVICE)
(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $44.37
Supplemental Benefit Rate per Hour: $18.31

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $48.84
Supplemental Benefit Rate per Hour: $27.20

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.19
Supplemental Benefit Rate per Hour: $27.55

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

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

Paid Holidays
None

Shift Rates
30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER: PUMP & TANK
Oil Trades (Installation and Maintenance)

Plumber - Pump & Tank

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $68.38
Supplemental Benefit Rate per Hour: $26.33

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

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

Paid Holidays
None

Shift Rates
All work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)

Journeyperson

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $54.39
Supplemental Benefit Rate per Hour: $27.79

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.71

Supplemental Benefit Rate per Hour: $28.72

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 4:00 P.M.) is to be paid at time and one half the regular rate. However, the employer may establish one (1) or two (2) shifts starting at or after 4:00 P.M. to be paid at the regular hourly rate plus a 10% differential.

(Bricklayer District Council)

ROOFER

Roofer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $44.25
Supplemental Benefit Rate per Hour: $34.81

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

Memorial Day
Independence Day
Labor 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. There must be a first shift to work the second shift, and a second shift to work the third shift. All other work outside the regular work day (an eight hour workday between the hours of 5:00 A.M. and 4:00 P.M.) is to be paid at time and one half the regular rate.

(Local #8)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.61
Supplemental Benefit Rate per Hour: $52.09
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.36
Supplemental Benefit Rate per Hour: $53.34
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $40.49
Supplemental Benefit Rate per Hour: $52.09

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $41.09
Supplemental Benefit Rate per Hour: $53.34

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $18.26
Supplemental Benefit Rate per Hour: $11.63

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $18.49
Supplemental Benefit Rate per Hour: $11.94

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
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Work that can only be performed outside regular working hours (eight 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

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $47.66
Supplemental Benefit Rate per Hour: $25.99
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.18
Supplemental Benefit Rate per Hour: $26.87
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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.50
Supplemental Benefit Rate per Hour: $3.95

Shipyard Mechanic - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $19.07
Supplemental Benefit Rate per Hour: $3.59

Shipyard Laborer - First Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $23.40
Supplemental Benefit Rate per Hour: $3.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.38
Supplemental Benefit Rate per Hour: $3.52

Shipyard Dockhand - First Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.57
Supplemental Benefit Rate per Hour: $3.68

Shipyard Dockhand - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.28
Supplemental Benefit Rate per Hour: $3.52

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 straight time 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

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.79
Supplemental Benefit Rate per Hour: $56.05

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $52.29
Supplemental Benefit Rate per Hour: $57.49

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
President's Day
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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $57.95
Supplemental Benefit Rate per Hour: $57.84
Supplemental Note: Overtime supplemental benefit rate: $114.94

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $59.05
Supplemental Benefit Rate per Hour: $58.14
Supplemental Note: Overtime supplemental benefit rate: $115.54

Steamfitter -Temporary Services

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.04
Supplemental Benefit Rate per Hour: $47.01

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.88
Supplemental Benefit Rate per Hour: $47.31

Overtime Description
Double time after a 7 hour day except for Temporary Services.

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

Paid Holidays
None

Shift Rates
May be performed outside of the regular workday except Saturday, Sunday and Holidays. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium

on supplemental benefits.

Local 638

STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
(Maintenance and Installation Service Person)

Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $42.60
Supplemental Benefit Rate per Hour: $17.96

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $42.85
Supplemental Benefit Rate per Hour: $19.46

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

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

Double time and one half the regular rate for work on the following holiday(s).
Martin Luther King Jr. Day
President's Day
Memorial Day
Columbus Day

Paid Holidays
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day

Thanksgiving Day
Christmas Day

(Local #638-B)

STONE MASON - SETTER

Stone Mason - Setter

(Assisted by Derrickperson and Rigger)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.99
Supplemental Benefit Rate per Hour: $45.58

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

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

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

Shift Rates
For all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

TAPER

Drywall Taper

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $47.82
Supplemental Benefit Rate per Hour: $27.56

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.47
Supplemental Benefit Rate per Hour: $27.91

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.

(Local #1974)

TELECOMMUNICATION WORKER
(Install/maintain/repair telecommunications cables carrying data, video, and/or voice except for installation on building construction/alteration/renovation projects.)

Telecommunication Worker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.88
Supplemental Benefit Rate per Hour: $23.15

Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. $22.84 for Staten Island only.

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
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday

Shift Rates

For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.

Vacation

After 6 months.....one week.
After 12 months but less than 7 years.....two weeks.
After 7 or more but less than 15 years.....three weeks.
After 15 years or more but less than 25 years.....four weeks.

(C.W.A.)

TILE FINISHER

Tile Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.31
Supplemental Benefit Rate per Hour: $34.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $34.78

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

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

Paid Holidays
None

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

(Local #7)

TILE LAYER - SETTER

Tile Layer - Setter

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $55.86
Supplemental Benefit Rate per Hour: $39.08

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.40
Supplemental Benefit Rate per Hour: $39.43

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

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

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

(Local #7)

TIMBERPERSON

Timberperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $51.05
Supplemental Benefit Rate per Hour: $51.94

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

Overtime Holidays

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

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $67.00
Supplemental Benefit Rate per Hour: $58.33

Tunnel Workers (Compressed Air Rates)

Includes shield driven liner plate portions or solidification portions work (8 hour shift) during excavation phase.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $64.63
Supplemental Benefit Rate per Hour: $56.47

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.53
Supplemental Benefit Rate per Hour: $55.38

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.29
Supplemental Benefit Rate per Hour: $54.44

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.29
Supplemental Benefit Rate per Hour: $54.44

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.72
Supplemental Benefit Rate per Hour: $51.24

Blasters (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.91
Supplemental Benefit Rate per Hour: $56.01

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $61.15
Supplemental Benefit Rate per Hour: $53.66

All Others (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $56.51
Supplemental Benefit Rate per Hour: $49.67

Microtunneling (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $48.92
Supplemental Benefit Rate per Hour: $42.93

Overtime Description

For work performed during excavation and primary concrete tunnel lining phases - Double time the regular rate after an 8 hour day and Saturday, Sunday and on the following holiday(s) listed below.
For Repair-Maintenance Work on Existing Equipment and Facilities - Time and one half the regular rate after a 7 hour day, Saturday, Sunday and double time the regular rate for work on the following holiday(s) listed below.

For Small-Bore Micro Tunneling Machines - Time and one-half the regular rate shall be paid for all overtime. For work not listed above - Time and one half the regular rate after an 8 hour day and Saturday and double time the regular rate on Sunday and on the following holiday(s) listed below.

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)

UTILITY LOCATOR
(Locate & mark underground utilities for street excavation.)

Utility Locator (Year 7 and above)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.56
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 5 - 6)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.85
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 4)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.54
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 3)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $20.30

Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 2)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $19.13
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 1)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $18.04
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Up to 1 year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $1.43
Supplemental Note: No benefits for the first 90 days of employment.

Overtime
Time and one half the regular rate for work on the following holiday(s).
Time and one half the regular hourly rate after 40 straight time hours in any work week.

Paid Holidays
New Year's Day
Memorial Day
Independence Day
Thanksgiving Day
Christmas Day

Shift Rates
10% shift differential to employees working any shift starting between noon and 5 AM.

Vacation
For up to 1 year 0 hours
For year 1 - 2 48 hours per year
For year 3 - 9 96 hours per year
For year 10 or more 144 hours per year

Sick Days:
For up to 1 year employee receives 40 hours paid sick leave.
For year 1 employee earns 2 hours of paid sick leave for every 100 overtime hours worked.
For year 2 - 9 years employee earns 4 hours of paid sick leave for every 100 overtime hours worked.
For year 10 or more employee earns 6 hours of paid sick leave for every 100 overtime hours worked.

(C.W.A.)

WELDER

TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE PERFORMING THE WORK.

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

ADDENDA CONTROL SHEET

BID SUBMISSION DATE/ TIME: March 11, 2021; between 11:30am and 2:00pm
BID OPENING DATE/ TIME: March 11, 2021; 2:30pm

PROJECT No. : PV791-TNC

TITLE: Theater for the New City – HVAC Replacement

ADDENDA ISSUED	NO. OF DWG	DATE	APPROVED BY: ARCHITECTURE/ ENGINEERING	GENERAL COUNSEL
#1 Revisions to the Bid Booklet; Revisions to Volume 2		2/9/2021		
#2 Questions from Bidders and Responses to Questions; Revisions to the Bid Booklet		3/2/2021		

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

March 2, 2021

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV791-TNC
Theater for the New City – HVAC Replacement

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 March 3, 2021, at 2:30 pm is rescheduled to March 11, 2021 at 2:30 pm.**

   Contract #1 – HVAC Work

2. **Bidders Questions and Responses to Questions:**
   See Attachment A.

3. **Revisions to the Bid Booklet:**
   See Attachment B.

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) 391-1041, or by email at CSB_projectinquiries@ddc.nyc.gov.

Richard Jones, PE CWI
Executive Director, Specifications

PENENT

Name of Bidder

By: _____

DDC PROJECT #: PV791-TNC

PROJECT NAME: Theater for the New City – HVAC Replacement

ATTACHMENT A – BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	We have been attempting to secure bid documents for this project since 1/26/21. We have been unable to setup an account in the DDCAnywhere site due to an internal issue at DDC as we have come to understand. I setup a ticket at the IT Dept but have not received a response as of yet. Job currently bids on 3.3.21. We are requesting that this bid be postponed at least a week to 3/10/21 so as to allow us sufficient time to receive the documents and prepare a bid. Please confirm if a bid postponement is possible.	Refer to Attachment B, Revisions to the Bid Booklet, for updated Bid Opening date.

DDC PROJECT #: PV791-TNC

PROJECT NAME: Theater for the New City – HVAC Replacement

ATTACHMENT B – REVISIONS TO THE BID BOOKLET

Delete page 22, and replace with revised page 22R, included with this Addendum.

ATTACHMENT 1 – BID INFORMATION
PROJECT ID: PV791-TNC

DESCRIPTION AND LOCATION OF WORK:

Theater for the New City- HVAC Replacement
155 First Avenue
New York, NY 10003
DDC PIN: 8502020PV0004C EPIN: 85020B0075

DOCUMENTS AVAILABLE AT:

Oneline at https://biddocuments.ddcanywhere.nyc/

SUBMISSION OF BIDS BEFORE BID OPENING:

TIME TO SUBMIT:

BETWEEN 11:30 AM AND 2:00 PM:	**Thursday, March 11, 2021**

BIDS MUST BE CLOCKED IN PRIOR TO BID OPENING

PLACE TO SUBMIT:

Department of Design and Construction, Contract Section
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. Email PBQ(s) - CSB_projectinquiries@ddc.nyc.gov

BID OPENING:

LIVE VIDEO WILL STREAM VIA THE FOLLOWING LINK:	https://us02web.zoom.us/j/89571373992?pwd=K3V4Z0ROQnVDa2d0YkY5RDVQVmVKUT09
Meeting ID:	895 7137 3992
Passcode:	547063
DATE AND HOUR:	**Thursday, March 11, 2021 @ 2:30pm**
LATE BIDS WILL NOT BE ACCEPTED	

PRE-BID IN PERSON WALK THRU CONFERENCE:

PLACE:	**Theater for the New City**
	155 First Avenue
	New York, NY 10003
DATE AND HOUR:	**Wednesday, February 10, 2021 10:00am - 11:30am**
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 $1,000,000.00.

(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 amount equal to 100% of the Contract Price.

AGENCY CONTACT PERSON:

Lorraine Holley, 30-30 Thomson Avenue - First Floor, Long Island City, Queens, 11101
Telephone (718) 391-1041 Email: CSB_projectinquiries@ddc.nyc.gov

For questions about site accessibility, please contact our disability services facilitator at (718) 391-2815 or via email at accessibility@ddc.nyc.gov.

FMS ID: **PV791-TNC**

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

Department of Design and Construction

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

CONTRACT NO. 1 HVAC Work

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
BOROUGH: **New York, NY 10003**
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: **PV791-TNC**

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

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

VOLUME 2 OF 3

INFORMATION FOR BIDDERS
CONTRACT
PERFORMANCE AND PAYMENT BONDS
SCHEDULE OF PREVAILING WAGES
GENERAL CONDITIONS

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

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
BOROUGH: **New York, NY 10003**
CITY OF NEW YORK

CONTRACT NO. 1 **HVAC Work**

FOR: **NYC Departent of Cultural Affairs**

BY: **Cosentini Associates**

Date: **June 4, 2020**

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

INFORMATION FOR BIDDERS
CONTRACT
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FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR THE PROJECT

CITY OF NEW YORK

DEPARTMENT OF
DESIGN AND CONSTRUCTION
DIVISION OF PUBLIC BUILDINGS

INFORMATION FOR BIDDERS

JULY 2019

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CITY OF NEW YORK CITY
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFORMATION FOR BIDDERS

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(NO TEXT ON THIS PAGE)

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, VOLUME 1 OF 3.

2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in Attachment 1, at which time they will be publicly opened and read aloud in the presence of the Commissioner or his or her representative, and any bidders who may desire to be present.

3. Definitions

The definitions set forth in the Procurement Policy Board Rules shall apply to this Invitation For Bids.

4. Invitation For Bids and Contract Documents

(A) Except for titles, sub-titles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience) the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of the Contract and the Invitation for Bids.

(1) All provisions required by law to be inserted in this Contract, whether actually inserted or not
(2) The Contract Drawings and Specifications
(3) The General Conditions, the General Requirements and the Special Conditions, if any
(4) The Contract
(5) The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet
(6) The Budget Director's Certificate; all Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed with the Work.

(B) For particulars as to this procurement, including quantity and quality of the purchase, extent of the work or labor to be performed, delivery and performance schedule, and any other special instructions, prospective bidders are referred to the Invitation For Bids Documents. A copy of such documents can be obtained at the location set forth in Attachment 1.

(C) Deposit for Copy of Invitation For Bids Documents: Prospective bidders may obtain a copy of the Invitation For Bids Documents by complying with the conditions set forth in the Notice of Solicitation. The deposit must be in the form of a check or money order made payable to the City of New York, and drawn upon a state or national bank or trust company, or a check of such bank or trust company signed by a duly authorized officer thereof.

(D) Return of Invitation For Bids Documents: All Invitation For Bids Documents must be returned to the Department upon request. If the bidder elects not to submit a bid thereunder, the Invitation For Bids Documents shall be returned to the Department, along with a statement that no bid will be submitted.

(E) Return of Deposit: Such deposit will be returned within 30 days after the award of the contract or the rejection of all bids as set forth in the advertisement, provided the Invitation For Bids Documents are returned to the location specified in Attachment 1, in physical condition satisfactory to the Commissioner.

(F) Additional Copies: Additional copies of the Invitation For Bids Documents may be obtained, subject to the conditions set forth in the advertisement for bids.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in Attachment 1. Nothing stated at the pre-bid conference shall change the terms or conditions of the Invitation For Bids Documents, unless a change is made by written amendment as provided in Section 9 below. Failure to attend a mandatory pre-bid conference shall constitute grounds for the rejection of the bid.

6. Agency Contact

Any questions or correspondence relating to this bid solicitation shall be addressed to the Agency Contact person specified in Attachment 1.

7. Bidder's Oath

(A) The bid shall be properly signed by an authorized representative of the bidder and the bid shall be verified by the written oath of the authorized representative who signed the bid, that the several matters stated and information furnished therein are in all aspects true.

(B) A materially false statement willfully or fraudulently made in connection with the bid or any of the forms completed and submitted with the bid may result in the termination of any Contract between the City and the Bidder. As a result, the Bidder may be barred from participating in future City contracts as well as be subject to possible criminal prosecution.

8. Examination and Viewing of Site, Consideration of Other Sources of Information and Changed Conditions

(A) Pre-Bidding (Investigation) Viewing of Site - Bidders must carefully view and examine the site of the proposed work, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions on, about or above the site relating to or affecting in any way the performance of the work to be done under the Contract which were or should have been indicated to a reasonably prudent bidder. To arrange a date for visiting the work site, bidders are to contact the Agency Contact person specified in Attachment 1.

(B) Should the contractor encounter during the progress of the work subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications or such subsurface conditions as could not reasonably have been anticipated by the contractor and were not anticipated by the City, which conditions will materially affect the cost of the work to be done under the Contract, the attention of the Commissioner must be called immediately to such conditions before they are disturbed. The Commissioner shall thereupon promptly investigate the conditions. If he finds that they do so materially differ, or that they could not reasonably have been anticipated by the contractor and were not anticipated by the City, the Contract may be modified with his written approval.

9. Examination of Proposed Contract

(A) Request for Interpretation or Correction: Prospective bidders must examine the Contract Documents carefully and before bidding must request the Commissioner in writing for an interpretation or correction of every patent ambiguity, inconsistency or error therein which should have been discovered by a reasonably prudent bidder. Such interpretation or correction, as well as any additional contract provisions the Commissioner may decide to include, will be issued in writing by the Commissioner as an addendum to the Contract, which will be transmitted to each person recorded as having received a copy of the Contract Documents from the Department. Transmission of such addendum will be by mail, e-mail, facsimile or hand delivery. Such addendum will also be posted at the place where the Contract Documents are available for the inspection of prospective bidders. Upon transmission as provided for herein, such addendum shall become a part of the Contract Documents, and binding on all bidders, whether or not actual notice of such addendum is shown.

(B) Only Commissioner's Interpretation or Correction Binding: Only the written interpretation or correction so given by the Commissioner shall be binding, and prospective bidders are warned that no other officer, agent or employee of the City is authorized to give information concerning, or to explain or interpret, the Contract.

(C) Documents given to a subcontractor for the purpose of soliciting the subcontractor's bid shall include either a copy of the bid cover sheet or a separate information sheet setting forth the project name, the Contract number (if available), the contracting agency and the Project's location.

10. Form of Bid

Each bid must be submitted upon the prescribed form and must contain: a) the name, residence and place of business of the person or persons making the same; b) the names of all persons interested therein, and if no other person is so interested, such fact must be distinctly stated; c) a statement to the effect that it is made without any connection with any other person making a bid for the same purpose and that it is in all respects fair and without collusion or fraud; d) a statement that no Council member or other officer or employee or person whose salary is payable in whole or part from the City Treasury is directly or indirectly interested therein or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof; e) a statement that the bidder is not in arrears to the City or to any agency upon a debt or contract or taxes, and is not a defaulter as surety or otherwise upon any obligation to the City to any agency thereof, except as set forth in the bid.

THE BID SHALL BE TYPEWRITTEN OR WRITTEN LEGIBLY IN INK. THE BID SHALL BE SIGNED IN INK. ERASURES OR ALTERATIONS SHALL BE INITIALED BY THE SIGNER IN INK. FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS SECTION 10 SHALL RESULT IN THE REJECTION OF THE BID.

11. Irrevocability of Bid

The prices set forth in the bid cannot be revoked and shall be effective until the award of the Contract, unless the bid is withdrawn as provided for in Sections 15 and 18 below.

12. Acknowledgment of Amendments

The receipt of any amendment to the Contract Documents shall be acknowledged by the bidder in its bid submission.

13. Bid Samples and Descriptive Literature

Bid samples and descriptive literature shall not be submitted by the bidder, unless expressly requested elsewhere in the Contract or Contract Documents. Any unsolicited bid samples or descriptive literature which are submitted shall not be examined or tested and shall not be deemed to vary any of the provisions of this Contract.

14. Proprietary Information/Trade Secrets

(A) The bidder shall identify those portions of the bid which it deems to be confidential, proprietary information or trade secrets, and provide justification why such materials shall not be disclosed by the City. All such materials shall be clearly indicated by stamping the pages on which such information appears, at the top and bottom thereof with the word "Confidential". Such materials stamped "Confidential" must be easily separable from the non-confidential sections of the bid.

(B) All such materials so indicated shall be reviewed by the Agency and any decision not to honor a request for confidentiality shall be communicated in writing to the bidder. For those bids which are unsuccessful, all such confidential materials shall be returned to the bidder. Prices, makes and model or catalog numbers of the items offered, deliveries, and terms of payment shall be publicly available after bid opening, regardless of any designation of confidentiality made by the bidder.

15. Pre-Opening Modification or Withdrawal of Bids

Bids may be modified or withdrawn by written notice received in the office designated in Attachment 1, before the time and date set for the bid opening. If a bid is withdrawn in accordance with this Section, the bid security, if any, shall be returned to the bidder.

16. Bid Evaluation and Award

In accordance with the New York City Charter, the Procurement Policy Board Rules and the terms and conditions of this Invitation For Bids, this Contract shall be awarded, if at all, to the responsible bidder whose bid meets the requirements and evaluation criteria set forth in the Invitation For Bids, and whose bid price is either the most favorable bid price or, if the Invitation For Bids so states, the most favorable evaluated bid price. A bid may not be evaluated for any requirement or criterion that is not disclosed in the Invitation For Bids.

Restriction: No negotiations with any bidder shall be allowed to take place except under the circumstances and in the manner set forth in Section 21. Nothing in this Section shall be deemed to permit a contract award to a bidder submitting a higher quality item than that designated in the Invitation For Bids, if that bid is not also the most favorable bid.

17. Late Bids, Late Withdrawals and Late Modifications

Any bid received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. Any request for withdrawal or modification received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. The exception to this provision is that a late modification of a successful bid that makes the bid terms more favorable to the City shall be considered at any time it is received.

18. Withdrawal of Bids.

Except as provided for in Section 15, above, a bidder may not withdraw its bid before the expiration of forty-five (45) days after the date of the opening of bids; thereafter, a bidder may withdraw its bid only in writing and in advance of an actual award. If within sixty (60) days after the execution of the Contract, the Commissioner fails to fix the date for commencement of work by written notice to the bidder, the bidder, at his option, may ask to be relieved of his obligation to perform the work called for by written notice to the Commissioner. If such notice is given to the Commissioner, and the request to withdraw is granted, the bidder waives all claims in connection with this Contract.

19. Mistake in Bids

(A) Mistake Discovered Before Bid Opening: A bidder may correct mistakes discovered before the time and date set for bid opening by withdrawing or correcting the bid as provided in Section 15 above.

(B) Mistakes Discovered Before Award

(1) In accordance with General Municipal Law (Section 103, subdivision 11), where a unilateral error or mistake is discovered in a bid, such bid may be withdrawn upon written approval of the Agency Chief Contracting Officer if the following conditions are met:

(a) The mistake is known or made known to the agency prior to the awarding of the Contract or within 3 days after the opening of the bid, whichever period is shorter; and
(b) The price bid was based upon an error of such magnitude that enforcement would be unconscionable; and

(c) The bid was submitted in good faith and the bidder submits credible evidence that the mistake was a clerical error as opposed to a judgment error; and
(d) The error in the bid is actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, material or services made directly

in the compilation of the bid, which unintentional arithmetic error pr unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and

(e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

(1) Award to a certified New York City small, minority or woman-owned business entity bidder;
(2) Award to a New York City bidder;
(3) Award to a certified New York State small, minority or woman-owned business bidder;
(4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

(1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
(2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
(3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
(4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

(1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or
(2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract

without issuing a new solicitation, subject to the following conditions:

(1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;
(2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and
(3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the Procurement and Sourcing Solutions Portal (PASSPort), a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

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)669-2323.

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 (BID BOOKLET, VOLUME 1 OF 3). 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 215-364-6465; (2) through the Internet at https://www.fiscal.treasury.gov/surety-bonds/.

(E) Power of Attorney: Attorneys in fact who sign bid, performance, or payment bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

27. Failure to Execute Contract

In the event of failure of the successful bidder to execute the Contract and furnish the required security within ten (10) days after notice of the award of the Contract, the deposit of the successful bidder or so much thereof as shall be applicable to the amount of the award made shall be retained by the City, and the successful bidder shall be liable for and hereby agrees to pay on demand the difference between the price bid and the price for which such Contract shall be subsequently awarded, including the cost of any required reletting and less the amount of such deposit. No plea of mistake in such accepted bid shall be available to the bidder for the recovery of the deposit or as a defense to any action based upon such accepted bid. Further, should the bidder's failure to comply with this Section cause any funding agency, body or group (Federal, State, City, Public, Private, etc.) to terminate, cancel or reduce the funding on this project, the bidder in such event shall be liable also to the City for the amount of actual funding withdrawn by such agency on this project, less the amount of the forfeited deposit.

28. Bidder Responsibilities and Qualifications

(A) Bidders must include with their bids all information necessary for a determination of bidder responsibility, as set forth in the Specifications.

(B) The Agency may require any bidder or prospective bidder to furnish all books of account, records, vouchers, statements or other information concerning the bidder's financial status for examination as may be required by the Agency to ascertain the bidder's responsibility and capability to perform the Contract. If required, a bidder must also submit a sworn statement setting forth such information as the Agency may require concerning present and proposed plant and equipment, the personnel and qualifications of his working organizations, prior experience and performance record.

(C) Oral Examination on Qualifications: In addition thereto, and when directed by the Agency, the bidder, or a responsible officer, agent or employee of the bidder, must submit to an oral examination to be conducted by the Agency in relation to his proposed tentative plan and schedule of operations, and such other matters as the Agency may deem necessary in order to determine the bidder's ability and responsibility to perform the work in accordance with the Contract. Each person so examined must sign and verify a stenographic transcript of such examination noting thereon such corrections as such person may desire to make.

(D) If the bidder fails or refuses to supply any of the documents or information set forth in paragraph (B) hereof or fails to comply with any of the requirements thereof, the Agency may reject the bid.

29. Employment Report

In accordance with Executive Order No. 50 (1980) as modified by Executive Order 108 (1986), the filing of a completed Employment Report (ER) is a requirement of doing business with the City of New York for construction contractors with contracts of $1,000,000 or more and subcontractors with construction subcontracts of $750,000 or more. The required forms and information are included in the Bid Booklet.

30. Labor Law Requirements

(A) General: The successful bidder will be required to comply strictly with all Federal, State and local labor laws and regulations.

(B) New York State Labor Law: This Contract is subject to New York State Labor Law Section 220, which requires that construction workers on the site be paid prevailing wages and supplements. The Contractor is reminded that all wage provisions of this Contract will be enforced strictly and failure to comply will be considered when evaluating performance. Noncompliance may result in the contractor being debarred by the City from future contracts. Complaints filed with the Comptroller may result in decisions which may debar a contractor from bidding contracts with any state governmental entity and other political subdivisions.

(C) Records: The Contractor is expected to submit accurate payroll reports and other required documents and verify attendance and job classifications being utilized in compliance with the law, Contract provisions and agency procedures.

31. Insurance

(A) Bidders are advised that the insurance requirements contained herein are regarded as material terms of the Contract. As required by Article 22 of the Contract, the contractor must effect and maintain with companies licensed and authorized to do business in the State of New York, the types of insurance set forth therein, when required by and in the amounts set forth in Schedule A of the General Conditions. Such required insurance must be provided from the date the contractor is ordered to commence work and up to the date of final acceptance of all required work.

(B) The contractor must, within ten days of receipt of the notice of award, submit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A of the General Conditions, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by Section 57 of the New York State Workers' Compensation Law and Section 220 of the Disability Benefits Law.

32. Lump Sum Contracts

(A) Comparison of Bids: Bids on Lump Sum Contracts will be compared on the basis of the lump sum price bid, adjusted for alternate prices bid, if any.

(B) Lump Sum Bids for "General Construction Work" which include excavation shall include all necessary excavation work defined in the Specifications as being included in the lump sum bid. The bidder shall also bid a unit price for the additional cost of excavating material which is defined in the Specifications as excavation for which additional payment will be made. The total estimated additional cost of removing such material will be taken as the quantity set forth in the Engineer's Estimate multiplied by the unit price bid. This total estimated cost of additional excavation shall be added to the lump sum bid for the General Construction Work for the purpose of comparing bids to determine the low bidder.

(C) Variations from Engineer's Estimate: The Engineer's Estimate of the quantity of excavation for which additional payment will be made is approximate only and is given solely to be used as a uniform basis for the comparison of bids and such estimate is not to be considered as part of this contract. The quantities actually required to complete the contract work may be more or less than the quantities in the Engineer's Estimate and, if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

33. Unit Price Contracts

(A) Comparison of Bids: Bids on Unit Price Contracts will be compared on the basis of a total estimated price, arrived at by taking the sum of the estimated quantities of such items, in accordance with the Engineer's Estimate of Quantities set forth in the Bid Form, multiplied by the corresponding unit prices, and including any lump sum bids on individual items.

(B) Variations from Engineer's Estimate: Bidders are warned that the Engineer's Estimate of Quantities on the various items of work and materials is approximate only, given solely to be used as a uniform basis for the comparison of bids, and is not be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

(C) Overruns: The terms and conditions applicable to overruns of unit price items are set forth in Article 26 of the Contract.

34. Excise Tax

Bidders are referred to the Specifications for information on Federal Excise Tax exemptions.

35. Licenses and Permits

The successful bidder will be required to obtain all necessary licenses and permits necessary to perform the work.

36. Multiple Prime Contractors

If more than one prime contractor will be involved on this project, all contractors are required to examine the Invitation for Bid packages for all other parts of the project.

37. Locally Based Enterprise Requirements (LBE)

This Contract is subject to the requirements of Administrative Code, Section 6-108.1, and the regulations promulgated thereunder. No construction contract will be awarded unless and until these requirements have been complied with in their entirety. The bidder is advised of the provisions set forth below, as well as the provisions with respect to the Locally Based Enterprise Program contained in Article 67 of the Contract. The contractor is advised that:

(A) If any portion of the Contract is subcontracted, not less than ten percent of the total dollar amount of the contract shall be awarded to locally based enterprises ("LBEs"); except, where less than ten percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

(B) No contractor shall require performance and payment bonds from LBE subcontractors.

(C) No Contract shall be awarded unless the contractor first identifies in its bid:

(1) the percentage, dollar amount and type of work to be subcontracted; and
(2) the percentage, dollar amount and type of work to be subcontracted to LBEs.

(D) Within ten calendar days after notification of low bid, the apparent low bidder shall submit an "LBE Participation Schedule" to the contracting agency. If such schedule does not identify sufficient LBE subcontractors to meet the requirements of Administrative Code Section 6-108.1, the apparent low bidder shall submit documentation of its good faith efforts to meet such requirements.

(1) The "LBE Participation Schedule" shall include:

(a) the name and address of each LBE that will be given a subcontract,
(b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and
(c) the dates when the LBE subcontract work will commence and end.

(2) The following documents shall be attached to the "LBE Participation Schedule":

(a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,
(b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and
(c) copies of the certification letter of any proposed subcontractor which is an LBE.

(3) Documentation of good faith efforts to achieve the required LBE percentage shall include as appropriate but not limited to the following:

(a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;

(b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;

(c) written notification to association of small, minority and women contractors soliciting specific subcontractors;

(d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;

(e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;

(f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:

(i) The names, address and telephone numbers of LBE firms that are contacted;

(ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;

(iii) Documentation showing that no reasonable price can be obtained from LBE firms;

(iv) A statement of why agreements with LBE firms were not reached;

(g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and

(h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

(E) Unless otherwise waived by the Commissioner with the approval of the Office of Economic and Financial Opportunity, failure of a proposed contractor to provide the information required by paragraphs (C) and (D) above may render the bid non-responsive and the Contract may not be awarded to the bidder. If the contractor states that it will subcontract a specific portion of the work, but can demonstrate despite good faith efforts it cannot achieve its required LBE percentage for subcontracted work until after award of Contract, the Contract may be awarded, subject to a letter of compliance from the contractor stating that it will comply with Administrative Code Section 6-108.1 and subject to approval by the Commissioner. If the contractor has not met its required LBE percentage prior to award, the contractor shall demonstrate that a good faith effort has been made subsequent to award to obtain LBEs on each subcontract until its meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth in the BID BOOKLET, VOLUME 1 OF 3.

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. Viewing of Submitted Bid Documents

In accordance with NYC Procurement and Policy Board Rules, Section 3-02, the submitted bid documents will be available to view immediately after completion of the bid opening and by appointment for up to 72 hours after the bid opening.

42. 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 FOR CONSTRUCTION CONTRACTS

January 2020

THE DDC SAFETY REQUIREMENTS FOR CONSTRUCTION CONTRACTS INCLUDE THE FOLLOWING SECTIONS:

I. POLICY ON SITE SAFETY

II. PURPOSE

III. DEFINITIONS

IV. RESPONSIBILITIES

V. SAFETY QUESTIONNAIRE

VI. SITE SAFETY PLAN

VII. KICK-OFF/PRE-CONSTRUCTION MEETINGS AND SAFETY REVIEW

VIII. EVALUATION DURING WORK IN PROGRESS

IX. SAFETY PERFORMANCE EVALUATION

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 contracts must, at a minimum, comply with the most current versions of all applicable federal, state and city laws, rules, and regulations, including without limitation:

- Code of Federal Regulations, Title 29, Part 1926 (29 CFR 1926) and applicable Sub-parts of Part 1910 – U.S. Occupational Safety and Health Administration (OSHA);
- Federal Highway Administration – Manual on Uniform Traffic Control Devices (MUTCD);
- New York Codes, Rules and Regulations (NYCRR), Title 12, Part 23 – Protection in Construction, Demolition and Excavation Operations;
- New York Codes, Rules and Regulations (NYCRR), Title 16, Part 753 – Protection of Underground Facilities;
- New York City Administrative Code, Title 28 – New York City Construction Codes;
- Rules of the City of New York, Title 15, Chapter 13 – Rules Pertaining To the Prevention of the Emission of Dust from Construction Related Activities;
- Rules of the City of New York, Title 15, Chapter 28 – Citywide Construction Noise Mitigation;
- Rules of the City of New York, Title 34 Chapter 2 – NYCDOT Highway Rules.

The Contractor will be required to comply with all new and/or revised federal, state and city laws, rules, and regulations, issued during the course of the project, at the expense of the Contractor without any additional costs to the DDC.

II. 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 hazards, 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 will mean the person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the City Chief Procurement Officer (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. This individual will have completed, at a minimum an authorized 30-hour OSHA Construction Safety Course. The Contractor may be required to provide more than one competent person due to construction operations and based on the number of active work sites.

Construction Safety Auditor: A representative of the Office of Construction Safety 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 audits, reviewing safety plans, reviewing construction permits, drawings, verifying Contractor's compliance with applicable federal, state and city laws, rules, regulations, and DDC Contract Safety Requirements, etc. and rendering technical advice and assistance to DDC Resident Engineers and Project Managers.

Office of Construction Safety: A unit of DDC Safety and Site Support that assesses contractor's safety on DDC jobsites and advises responsible parties of needed corrective actions.

Registered Construction Superintendent: For certain projects, as defined in New York City Construction Codes – Title 28, the contractor will provide a Construction Superintendent registered with the NYC Department of Buildings and responsible for all duties as defined in Chapter 33 of Title 1 of the Rules of the City of New York.

Contractor: For purposes of these Safety Requirements, the term "Contractor" will mean any person or entity that enters into a contract for the performance of construction work on a DDC project. The term "Contractor" will 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").

Daily Safety Job Briefing: Daily jobsite safety briefings, given to all jobsite personnel at project site by the Contractor before work begins and/or if hazards or potential hazards are discovered while working, with the purpose of discussing the scheduled activities for the day, the hazards related to these activities, activity specific safety procedures, and Job Hazard Analysis associated with the scheduled construction work. Daily jobsite briefings will be documented, available at the jobsite, and will include at a minimum, topics, name and signature of the person conducting the briefing session, names and signatures of attendants, name of the designated competent person, contactor's name, DDC Project ID, date, time, and location.

Director – Office of Construction Safety: Responsible for the operations of the Office of Construction Safety and the DDC Site Safety management programs.

Job Hazard Analysis (JHA): A process of identifying the major job tasks and any potential site-specific hazards that may be present during construction and establishing the means and methods to eliminate or control those hazards. A JHA will be documented, available at the jobsite and will include at a minimum work tasks, being performed, identified hazards, control methods for the identified hazards, contractor's name, DDC Project ID, location, date, name and signature of certifying person. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop and will be present at the worksite and produced upon request.

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, maintenance and protection of traffic, and excavation protective system, 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 will have at a minimum an OSHA 30-hour Construction Safety Course and other safety training applicable to Contractor's/subcontractor's project work. This individual will be responsible to oversee safety performance of the required construction work, conduct documented daily safety inspections, and implement corrective actions to maintain a safe work site. The Project Safety Representative must have sufficient experience and skills necessary to thoroughly understand the health and safety hazards and controls and must have authority to undertake corrective actions. A dedicated full-time Project Safety Representative may be required on large projects and projects deemed by DDC to be particularly high risk. DDC reserves the right to request a dedicated full-time Project Safety Representative for any reason at any time during the course of the project at the expense of the Contractor without any additional costs to the DDC. The full-time Project Safety Representative will be present at the site during all work activities.

Resident Engineer ("RE"): Representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the work. The RE may be a consultant retained by DDC, including a Construction Management (CM) or Resident Engineer Inspection (REI) firm. If DDC has retained a CM, REI or other consultant firm to perform management and oversite for the Project (e.g., CM-Builder, CM-Design-Builder, Project Manager, Program Manager), that CM, REI or other consultant is the Resident Engineer for purposes of these Safety Requirements.

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 New York City Construction Codes – Title 28, the Contractor will provide a Site Safety Manager with a Site Safety Manager License issued by the New York City Department of Building.

Site Safety Plan: A site-specific safety plan developed by the Contractor for a DDC project. The Site Safety Plan will identify the project work scope, identify hazards associated with the project work and include project specific safety procedures and training appropriate and necessary to complete the work. The Site Safety Plan will be submitted within 30 days from the Award Date or as otherwise directed and is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site.

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 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. Weekly safety meetings will be documented and will include at a minimum, topics, name and signature of the person conducting the meeting, names and signatures of attendees, contractor's name, DDC Project ID, date, and location.

Work: The construction required by the Contractor's 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. For the purposes of these Safety Requirements, the term "Work" includes all Utility Interference work (commonly referred to as "Section U", "EP-7", and "Joint Bid" work) performed in association with this Contract.

IV. RESPONSIBILITIES

All persons who manage, perform, and provide support for construction projects will conduct operations in compliance with the requirements identified in this Policy and all applicable governing regulatory agency requirements and guidelines pertaining to safety in construction.

A. Resident Engineer

1. Review and facilitate Contractor(s) Site Safety Plan submittals to DDC for acceptability.
2. Notify the Office of Construction Safety of the commencement of construction work.
3. Develop and implement a training verification process to ensure that all CM/REI, consultant, Contractor, and subcontractor employees are properly trained. Maintain all applicable initial and refresher training records and assures documentation availability on site.
4. Maintain documentation of and attend weekly safety meetings and daily safety job briefings.
5. Assure that Contractor(s) JHA's are current to reflect the work tasks being performed, hazards, and control methods to mitigate the identified hazards. Verify that all employees at the job site are trained on the JHAs and maintain supporting documentation on site.
6. Assure adequate planning for all critical construction activities (crane operation, excavation, confined space entry, etc.) including coordination between Contractor(s) /DDC/ other Agencies as required.
7. Maintain custody of all construction related permits, plans, approvals, drawings, etc., related to the project and assure their availability on site.
8. Recognize, minimize, or eliminate jobsite and public hazards, through required planning, inspection, verification, and corrective action process.
9. Monitor the conditions at the site for conformance with the Contractor's Site Safety Plan, DDC policies, permits, and all applicable regulations and documentation that pertain to construction safety.
10. Notify the Contractor and DDC immediately upon determination of any condition or activity existing which 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. Direct the Contractor to provide such labor, materials, equipment, and supervision to remedy such conditions.

11. Notify the Office of Construction Safety and the ACCO's Insurance and Risk Management Unit of project-related accidents, incidents, and near misses as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure within two (2) hours.
12. In case of an accident, incident, or near miss, RE is responsible to protect the integrity of the accident site including but not limited to: the safeguarding of all evidence, documentation of all personnel on site at the time of the accident, gather facts related to all accidents, incidents, or near miss, and prepare required DDC Construction Accident Report as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure. Maintain all records pertaining to accidents, incidents, and near miss and have them available upon request.
13. Notify the Office of Construction Safety within two (2) hours of the start of an inspection by any outside/ regulatory agency personnel, including NYS, OSHA, NYC DOB or any other City/State/Federal oversight entity and forward a copy of the inspection report within one business day of its receipt.
14. Escort and assist Construction Safety Auditors during all field and record audits.
15. Report any emergency conditions to the Office of Construction Safety immediately.

Note: In addition to the responsibilities listed above, if the Resident Engineer is a CM/REI or other non-City party hired by the City to manage the Project, the Resident Engineer is also required to do the following:

16. Provide personnel who are certified and or trained appropriately for the requirements of the project.
17. Perform an investigation for any project-related accidents, incidents, and near misses. Within 24-hours of the time of the accident, incident, or near miss, the CM/REI will submit an investigation report to the Office of Construction Safety. Such report will include proposed remedial measures and implementation of corrective actions to prevent recurrence.

DDC reserves the right to request that the CM/REI replace any CM/REI personnel for any reason at any time during the project.

B. Construction Contractors

Note: For CM-Build and CM-Design-Build Projects, the CM will meet all requirements listed in this section, as well as the Resident Engineer section above.

1. Submit a completed Safety Questionnaire and other safety performance related documentation with its bid or as part of a pre-qualification package.
2. Submit a Site Safety Plan within 30 days from the Award Date or as otherwise directed. The Site Safety Plan is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site. The Site Safety Plan will be revised and updated as necessary during the course of the project. If requested by the Office of Construction Safety, the Site Safety Plan must be developed and submitted for approval using a web-based system, the Site Safety Plan Application (SSP App).
3. Designate and identify a Project Safety Representative in the Site Safety Plan. The Contractor will immediately notify the Office of Construction Safety, in a form and manner acceptable to the Office of Construction Safety, of any permanent change to the designated Project Safety Representative. In the event the primary designated Project Safety Representative is temporary unable to perform his or her duties, an alternate Project Safety Representative will be provided. Resumes, outlining the qualification and experience for the Project Safety Representative (s) will be included in the Site Safety Plan and available upon request. DDC reserves the right to request the Contractor to replace a Project Safety Representative for any reason at any time during the course of the project.
4. Designate and identify a Competent Person(s) in the Site Safety Plan. Contractor/subcontractor may be required to provide more than one competent person due to construction operations and based on a number of work tasks/areas. DDC reserves the right to request the Contractor to replace a Competent Person or provide additional Competent Person(s) for any reason at any time during the course of the project. The Competent Person will be present at the site during all work activities.
5. For certain projects, as defined in New York City Construction Codes – Title 28, designate and identify the Licensed Site Safety Manager or Registered Construction Superintendent. Resumes, outlining the qualification and experience for the Licensed Site Safety Manager or Registered Construction Superintendent will be included in the Site Safety Plan and available upon request. The Contractor will immediately notify the Office

of Construction Safety, in a form and manner acceptable to the Office of Construction Safety, of any permanent change to the designated Site Safety Manager and/or Construction Superintendent. In the event the primary designated Site Safety Manager or Construction Superintendent is temporarily unable to perform his or her duties, an alternate Licensed Site Safety Manager and/or Registered Construction Superintendent will be provided. The Office of Construction Safety must be informed of such change. DDC reserves the right to request the Contractor to replace Site Safety Manager or Construction Superintendent for any reason at any time during the course of the project.

6. Develop a written Job Hazard Analysis (JHA) that identifies safety hazards and control methods for project specific work tasks. A preliminary JHA will be included in the Site Safety Plan submitted by the Contractor. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop during the course of the project and will be present at the worksite and produced upon request.
7. Develop project specific safety procedures to protect employees, general public, and property during all construction activities for the duration of the project.
8. 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 new employee and site-specific safety orientation for all Contractor and subcontractor 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 will conduct this training prior to mobilization and if necessary during the course of the project. Documentation will be provided to the RE.
9. Prior to performing any work on DDC projects all Contractor's and subcontractor's employees will, at a minimum, have successfully completed, within the previous five calendar years, an OSHA 10-hour construction safety course.

   All training records (OSHA 10-hour, flagger, scaffold, fall protection, confined space, etc.) will be provided to the RE prior to mobilization, included in the Site Safety Plan, kept current during the course of the project, and available for review.
10. Conduct and document weekly safety meetings and daily job briefing sessions for the duration of the project. Attendance at weekly safety meetings and daily job briefing sessions is mandatory. A written record of weekly safety meetings will be available upon request and job briefing sessions will be available at the worksite.
11. As part of the Site Safety Plan, prepare site specific procedures, such as maintenance and protection of traffic plan, steel erection plan, confined space program, fall protection plan, demolition plan, site specific emergency evacuation plan, etc. (if not otherwise provided in the contract documents) and comply with all of its provisions.
12. Have immediately available for review at the project site where actual construction activities are being performed all applicable documentation, including but not limited to: JHAs for work tasks being performed, all required training records, MPT plan (where applicable), Noise and Dust Mitigation Plans, excavation protective system drawings (where applicable), Emergency Evacuation plan, fall protection program (where applicable), confined space program (where applicable), all required permits, daily job briefing records, all required documentation for crane operation (where applicable), daily inspection checklist, scaffold and sidewalk drawings (when applicable), safety data sheets for chemicals in use.
13. Comply with all federal, state and local safety and health rules, laws, and regulations.
14. Comply with all provisions of the Site Safety Plan.
15. 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.). The project specific MPT plan will be developed, implemented, and reviewed during the course of the project.
16. The Project Safety Representative will conduct daily safety inspections, document the inspection results, implement corrective actions for the identified hazards. Maintain the inspection records and have them available upon request.
17. **Report unsafe or unhealthy conditions to the RE as soon as practical, but no more than 24 hours after discovery, and take prompt actions to remove or abate such conditions. Should an imminent dangerous condition be discovered, Contractor will stop all work in the area of danger until corrections are made.**
18. Report all accidents, incidents and near misses involving injuries to workers or the general public, as well as property damage, to the RE within one (1) hour.
19. Following an accident or incident, unless otherwise directed, the Contractor will not remove or alter any equipment, structure, material, or evidence related to the accident or incident. 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. Take

additional measures as necessary to secure the accident or incident site and to protect against any further injury or property damage.

20. The Contractor will perform an investigation into the root cause of the accident, incident, or near miss. Within 24 hours of an accident, incident, or near miss, the Contractor will prepare and submit to the RE a written investigation report detailing findings, corrective actions, and hazard mitigation implementation to prevent recurrence.
21. Notify the RE within two (2) hours of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB, or others.
22. Maintain all records pertaining to all required safety compliance documents, accidents and incidents reports. DDC reserves the right to request copy of any records pertaining to the safety of the project and required by DDC and other federal, state, and city agencies, including but not limited to permits, training records, safety inspection records, drawings, equipment records, etc.
23. Cooperate with DDC Office of Construction Safety/ RE and address DDC recommendations on safety, which will 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 will 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 will 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:

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 site safety plan submittals; etc.)

Criteria 6: OSHA violation history for the last three (3) years;

Criteria 7: Contractor will 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 Office of Construction Safety 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. SITE SAFETY PLAN

Within thirty (30) days from the Award Date or as otherwise directed, the Contractor will submit the Site Safety Plan. The Site Safety Plan will 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 Site Safety Plan is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site. Due to the project work scope and project duration, the Office of Construction Safety may grant a conditional acceptance for a Site Safety Plan without all sections being complete. In a case of a "Conditional Acceptance" of a Site Safety Plan,

the Contractor will provide the remaining sections previously incomplete and/or not submitted for review and acceptance by the Office of Construction Safety prior to the commencement of the construction activities. The Office of Construction Safety reserves the right to withdraw the initial "Conditional Acceptance" if the Contractor fails to provide the remaining sections of a Site Safety Plan. Failure by the Contractor to submit an acceptable Site Safety Plan will be grounds for default.

Site Safety Plan requirements: The Site Safety Plan will be a written document and will apply to all project specific Contractor and subcontractor operations, and will have at a minimum, the following elements with each 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). All Site Safety Plan sections will be numbered in the order listed below. For sections, which are not applicable for the type of the work being performed by the Contractor on DDC project, the Contractor will in writing indicate "Not applicable based on the project work scope." The Site Safety Plan will include Contractor's name, DDC project ID, project location (s), and development and revision dates. The Site Safety Plan will include the sections, attachments, and appendixes provided in the Site Safety Plan. All pages of the Site Safety Plan will be numbered. If requested by the Office of Construction Safety, the Site Safety Plan must be developed and submitted for approval using a web-based system, the Site Safety Plan Application (SSP App).

1. Project Work Scope – Detailed information regarding work tasks that will be performed by Contractor and subcontractors under the project.
2. Responsibility and Organization – Contractor's organization chart with responsible personnel for the project, including titles, names, contact information, roles, and responsibilities. All Contractor's personnel required by the DDC Safety Requirements will be identified.
3. 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.
4. Job Hazard Analysis (JHA) – Project specific Job Hazard Analysis including work tasks, identified hazards, hazard control methods (administrative, engineering, PPE) to protect workers, property and general public, Contractor's name, project id, location, name and signature of a certifying person, hazard assessment date.
5. Protection of Public – Project specific procedures covering safety of the general public during all project construction activities.
6. Hazard Corrective Actions - Procedures for hazard identification, including responsible person(s), frequency of safety inspections, implementation of corrective actions, safety inspection checklist.
7. Accident/Exposure Investigation – Project specific procedures for accident/incident/near miss investigation and implementation of corrective actions. Accident/incident/near miss notification procedure of DDC project staff (timer frame and responsible personnel).
8. Recording and Reporting Injuries – Procedures to meet 29 CFR 1904 requirements.
9. First Aid and Medical Attention – Responsible staff, location and inspection of First Aid kit, directions to local hospitals; emergency telephone numbers.
10. Project Specific Fire Protection and Prevention Program – Project specific procedures, including responsible staff, fire alarm system/methods, hot work procedures, etc.
11. Housekeeping Procedure.
12. Project Specific Illumination Procedure.
13. Project Specific Sanitation Procedure.
14. Personal Protective Equipment (PPE), including Respiratory Protection Program and Hearing Conservation Program, if required.
15. Hazard Communication Program – Contractor's Hazard Communication Program, responsible staff; training; SDS records, project specific list of chemicals; location of the program and SDS records.
16. 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.
17. Employee Emergency Action Plan – Project specific: responsible staff, emergency alarm system/devices, evacuation procedure, procedure to account for employees after evacuation, etc.
18. Evacuation Plan – Project specific evacuation plan (drawing/scheme) with exists and evacuation routes.
19. Ionizing/Nonionizing Radiation – Competent person, license and qualification requirements, type of radiation, employee's exposure and protection, safety procedures, etc.

20. Material Handling, Storage, Use and Disposal – Project specific information regarding material storage, disposal, and handling: procedures, plan/drawings, etc.
21. Signs, Signals, and Barricades – Use of danger/warning signs, safety instruction signs, sidewalk closure and pedestrian fencing and barricades (if not included in the MPT plan), etc.
22. Tools – Hand and Power – Safety procedures for the type of tools to be used.
23. Scaffold – Project specific scaffold types, procedures, training requirements, scaffold drawings, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed; competent person, criteria for project specific scaffold, falling object protection, procedures for aerial lifts/scissor lifts.
24. 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 (if not covered by Contractor's Fire Prevention and Protection program, FDNY certificate requirements).
25. Electrical Safety – Project specific procedures, including lock out-tag out.
26. Fall Protection – Project specific information regarding selected fall protection systems, fall protection plan, responsible staff.
27. 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.
28. Excavation Safety – Competent person; excavation procedures; project specific protective system, including drawings, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed.
29. Protection of Underground Facilities and Utilities Procedure, including responsible staff and responsibilities.
30. Concrete and Masonry Construction Procedures
31. Maintenance and Protection of Traffic Plan – Project specific MPT plan, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed; flagmen training, public safety, etc.
32. Steel Erection – Site specific erection plan, requirements for applicable written notifications, competent person, fall protection plan, training requirements, etc.
33. 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.
34. Blasting and the Use of Explosives – Project specific safety procedures, warning signs, training/qualification, transportation, storage and use of explosives, inspection.
35. Stairways and Ladders – Types of stairs and ladders, safety procedures, training requirements.
36. Alcohol and Drug Abuse Policy
37. Rodents and Vermin Controls
38. Toxic and Hazardous Substances – Safety procedures for substances that Contractor's and subcontractor's employees can be exposed on project.
39. Noise Mitigation Plan – Completed project specific Noise Mitigation Plan, and noise mitigation procedures.
40. Confined Space Program – Project specific Confined Space Program, responsible staff, training records, equipment information, rescue procedure, list of project specific confined spaces, forms.
41. Construction Vehicles/Heavy Equipment – Type of construction vehicles/heavy equipment to be used on site, procedures
42. Dust Mitigation Plan – Completed project specific Dust Mitigation Plan, and dust mitigation procedures.
43. Working Over and Near Water. Diving Operations – safety procedures including personal protective equipment, fall protection, rescue services, etc.

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 will conduct a site and task assessment to identify the tasks 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 will be communicated to all Contractor/subcontractor personnel on site. The JHA will include safety hazard identification and controls to protect employees, general public, and property.

The initial JHA will be included in the Contractor's Site Safety Plan and the current JHA form will be available at the construction site for reference. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop and will be present at the worksite and produced upon request.

VII. KICK-OFF MEETINGS/PRE-CONSTRUCTION AND SAFETY REVIEW

Prior to the start of construction activities on all DDC projects, RE will invite the Office of Construction Safety to the construction kick-off meeting. The Office of Construction Safety representative(s) will participate in this meeting with the Contractor and RE for the purpose of:

A. Reviewing DDC Contract Safety Requirements
B. Reviewing site-specific safety issues based on a project work scope, location, and any other factors which may impact safety of workers and general public.
C. Reviewing the Site Safety Plan and JHA requirements.
D. Reviewing Accident/Incident reporting and investigation procedures.
E. Reviewing designated safety contacts, roles, and responsibilities.
F. Discussing planned inspections and audits of the site by the Office of Construction Safety 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 Office of Construction Safety (or other designated DDC representative) and the RE during regular inspections and comprehensive audits of the job site. Field Exit Conferences will be held with the RE and Contractor Project Safety Representatives.
B. The RE will continually monitor the safety and environmental performance of the Contractor's employees and work methods. Deficiencies will be brought to the attention of the Contractor's Project Safety Representative on site for immediate correction. The RE will maintain a written record of these deficiencies and have these records available upon request. Any critical deficiencies will be immediately reported to the Office of Construction Safety via telephone (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 – Office of Construction Safety, or his/her designee will meet with the Contractor's Project Safety Representative and other representatives, the RE, 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, the Commissioner may, without limitation, declare the Contractor in default.
E. The Contractor will within 1 hour inform the RE of all accidents/incidents/near misses 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 will notify the Office of Construction Safety as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure and will maintain a record of all Contractor accidents/incidents for the project.
F. The Contractor and the RE will notify the Office of Construction Safety 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 will be a reason to rate a Contractor unsatisfactory which may be reflected in the City's PASSPort system and will be considered for future procurement actions as set forth in the City's Procurement Policy Board Rules.

CITY OF NEW YORK

STANDARD CONSTRUCTION CONTRACT

March 2017

(NO TEXT ON THIS PAGE)

CITY OF NEW YORK
STANDARD CONSTRUCTION CONTRACT

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WITNESSETH:

The parties, in consideration of the mutual agreements contained herein, agree as follows:

CHAPTER I: THE CONTRACT AND DEFINITIONS

ARTICLE 1. THE CONTRACT

1.1 Except for titles, subtitles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of this **Contract**:

1.1.1 All provisions required by law to be inserted in this **Contract**, whether actually inserted or not;

1.1.2 The Contract Drawings and Specifications;

1.1.3 The General Conditions and Special Conditions, if any;

1.1.4 The **Contract**;

1.1.5 The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet;

1.1.6 All Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed or the Order to Work.

1.2 Should any conflict occur in or between the Drawings and Specifications, the **Contractor** shall be deemed to have estimated the most expensive way of doing the **Work**, unless the **Contractor** shall have asked for and obtained a decision in writing from the **Commissioner** of the **Agency** that is entering into this **Contract**, before the submission of its bid, as to what shall govern.

ARTICLE 2. DEFINITIONS

2.1 The following words and expressions, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless a different meaning is clear from the context:

2.1.1 **"Addendum"** or **"Addenda"** shall mean the additional Contract provisions and/or technical clarifications issued in writing by the Commissioner prior to the receipt of bids.

2.1.2 **"Agency"** shall mean a city, county, borough or other office, position, department, division, bureau, board or commission, or a corporation, institution or agency of government, the expenses of which are paid in whole or in part from the City treasury.

2.1.3 **"Agency Chief Contracting Officer" (ACCO)** shall mean a person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO, or his/her duly authorized representative.

2.1.4 **"Allowance"** shall mean a sum of money which the Agency may include in the total amount of the Contract for such specific contingencies as the Agency believes may be necessary to complete the Work, *e.g.*, lead or asbestos remediation, and for which the Contractor will be paid on the basis of stipulated unit prices or a formula set forth in the Contract or negotiated between the parties provided, however, that if the Contractor is not directed to use the Allowance, the Contractor shall have no right to such money and it shall be deducted from the total amount of the Contract.

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

2.1.6 **"City Chief Procurement Officer" (CCPO)** shall mean a person delegated authority by the Mayor to coordinate and oversee the procurement activity of Mayoral agency staff, including the ACCO and any offices which have oversight responsibility for the procurement of construction, or his/her duly authorized representative.

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

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

2.1.9 **"Contract"** or **"Contract Documents"** shall mean each of the various parts of the contract referred to in Article 1 hereof, both as a whole and severally.

2.1.10 **"Contract Drawings"** shall mean only those drawings specifically entitled as such and listed in the Specifications or in any Addendum, or any drawings furnished by the Commissioner, pertaining or supplemental thereto.

2.1.11 **"Contract Work"** shall mean everything required to be furnished and done by the Contractor by any one or more of the parts of the Contract referred to in Article 1, except Extra Work as hereinafter defined.

2.1.12 **"Contractor"** shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and its, their, his/her successors, personal representatives, executors, administrators, and assigns, and any person, firm, partnership, joint venture, individual, or corporation which shall at any time be substituted in the place of the Contractor under this Contract.

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

2.1.14 **"Engineer"** or **"Architect"** or **"Project Manager"** shall mean the person so designated in writing by the Commissioner in the Notice to Proceed or the Order to Work to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be. Subject to written approval by the Commissioner, the Engineer, Architect or Project Manager may designate an authorized representative.

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

2.1.16 **"Extra Work"** shall mean Work other than that required by the Contract at the time of award which is authorized by the Commissioner pursuant to Chapter VI of this Contract.

2.1.17 **"Federal-Aid Contract"** shall mean a contract in which the United States (federal) Government provides financial funding as so designated in the Information for Bidders.

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

2.1.19 **"Final Approved Punch List"** shall mean a list, approved pursuant to Article 14.2.2, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.

2.1.20 **"Law"** or **"Laws"** shall mean the Constitution of the State of New York, the New York City Charter, the New York City Administrative Code, a statute of the United States or of the State of New York, a local law of the City of New York, any ordinance, rule or regulation having the force of law, or common law.

2.1.21 **"Materialman"** shall mean any corporation, firm, partnership, joint venture, or individual, other than employees of the Contractor, who or which contracts with the Contractor or any Subcontractor, to fabricate or deliver, or who actually fabricates or delivers, plant, materials or equipment to be incorporated in the Work.

2.1.22 **"Means and Methods of Construction"** shall mean the labor, materials, temporary structures, tools, plant, and construction equipment, and the manner and time of their use, necessary to accomplish the result intended by this Contract.

2.1.23**"Notice to Proceed" or "Order to Work"** shall mean the written notice issued by the Commissioner specifying the time for commencement of the Work and the Engineer, Architect or Project Manager.

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

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

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

2.1.27 **"Procurement Policy Board" (PPB)** shall mean the Agency of the City of New York whose function is to establish comprehensive and consistent procurement policies and rules which shall have broad application throughout the City.

2.1.28 **"Required Quantity"** in a unit price Contract shall mean the actual quantity of any item of Work or materials which is required to be performed or furnished in order to comply with the Contract.

2.1.29 **"Resident Engineer"** shall mean the representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the Work.

2.1.30 **"Site"** shall mean the area upon or in which the Contractor's operations are carried on, and such other areas adjacent thereto as may be designated as such by the Engineer.

2.1.31 **"Small Tools"** shall mean items that are ordinarily required for a worker's job function, including but not limited to, equipment that ordinarily has no licensing, insurance or substantive storage costs associated with it; such as circular and chain saws, impact drills, threaders, benders, wrenches, socket tools, etc.

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

2.1.33 **"Subcontractor"** shall mean any person, firm or corporation, other than employees of the Contractor, who or which contracts with the Contractor or with its subcontractors to furnish, or actually furnishes labor, or labor and materials, or labor and equipment, or superintendence, supervision and/or management at the Site. Wherever the word Subcontractor appears, it shall also mean sub-Subcontractor.

2.1.34 **"Substantial Completion"** shall mean the written determination by the Engineer that the Work required under this Contract is substantially, but not entirely, complete and the approval of the **Final Approved Punch List**.

2.1.35 **"Work"** shall mean all services required to complete the Project in accordance with the Contract Documents, including without limitation, labor, material, superintendence, management, administration, equipment, and incidentals, and obtaining any and all permits, certifications and licenses as may be necessary and required to complete the Work, and shall include both Contract Work and Extra Work.

CHAPTER II: THE WORK AND ITS PERFORMANCE

ARTICLE 3. CHARACTER OF THE WORK

3.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Work** shall be performed in accordance with the best modern practice, utilizing, unless otherwise specified in writing, new and unused materials of standard first grade quality and workmanship and design of the highest quality, to the satisfaction of the **Commissioner**.

ARTICLE 4. MEANS AND METHODS OF CONSTRUCTION

4.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Means and Methods of Construction** shall be such as the **Contractor** may choose; subject, however, to the **Engineer's** right to reject the **Means and Methods of Construction** proposed by the **Contractor** which in the opinion of the **Engineer**:

4.1.1 Will constitute or create a hazard to the **Work**, or to persons or property; or

4.1.2 Will not produce finished **Work** in accordance with the terms of the **Contract**; or

4.1.3 Will be detrimental to the overall progress of the **Project**.

4.2 The **Engineer's** approval of the **Contractor's Means and Methods of Construction**, or his/her failure to exercise his/her right to reject such means or methods, shall not relieve the **Contractor**

of its obligation to complete the **Work** as provided in this **Contract**; nor shall the exercise of such right to reject create a cause of action for damages.

ARTICLE 5. COMPLIANCE WITH LAWS

5.1 The **Contractor** shall comply with all **Laws** applicable to this **Contract** and to the **Work** to be done hereunder.

5.2 Procurement Policy Board Rules: This **Contract** is subject to the Rules of the **PPB** ("**PPB** Rules") in effect at the time of the bid opening for this **Contract**. In the event of a conflict between the **PPB** Rules and a provision of this **Contract**, the **PPB** Rules shall take precedence.

5.3 Noise Control Code provisions.

5.3.1 In accordance with the provisions of Section 24-216(b) of the Administrative Code of the **City** ("Administrative Code"), Noise Abatement Contract Compliance, devices and activities which will be operated, conducted, constructed or manufactured pursuant to this **Contract** and which are subject to the provisions of the **City** Noise Control Code shall be operated, conducted, constructed, or manufactured without causing a violation of the Administrative Code. Such devices and activities shall incorporate advances in the art of noise control development for the kind and level of noise emitted or produced by such devices and activities, in accordance with regulations issued by the **Commissioner** of the **City** Department of Environmental Protection.

5.3.2 The **Contractor** agrees to comply with Section 24-219 of the Administrative Code and implementing rules codified at 15 Rules of the City of New York ("RCNY") Section 28-100 *et seq*. In accordance with such provisions, the **Contractor**, if the **Contractor** is the responsible party under such regulations, shall prepare and post a Construction Noise Mitigation Plan at each **Site**, in which the **Contractor** shall certify that all construction tools and equipment have been maintained so that they operate at normal manufacturers operating specifications. If the **Contractor** cannot make this certification, it must have in place an Alternative Noise Mitigation Plan approved by the **City** Department of Environmental Protection. In addition, the **Contractor**'s certified Construction Noise Mitigation Plan is subject inspection by the **City** Department of Environmental Protection in accordance with Section 28-101 of Title 15 of RCNY. No **Contract Work** may take place at a **Site** unless there is a Construction Noise Mitigation Plan or approved Alternative Noise Mitigation Plan in place. In addition, the **Contractor** shall create and implement a noise mitigation training program. Failure to comply with these requirements may result in fines and other penalties pursuant to the applicable provisions of the Administrative Code and RCNY.

5.4 Ultra Low Sulfur Diesel Fuel: In accordance with the provisions of Section 24-163.3 of the Administrative Code, the **Contractor** specifically agrees as follows:

5.4.1 Definitions. For purposes of this Article 5.4, the following definitions apply:

5.4.1(a) "Contractor" means any person or entity that enters into a Public Works Contract with a **City Agency**, or any person or entity that enters into an agreement with such person or entity, to perform work or provide labor or services related to such Public Works Contract.

5.4.1(b) "Motor Vehicle" means any self-propelled vehicle designed for transporting persons or property on a street or highway.

5.4.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.4.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this term shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) horsepower or less and that are not used in any construction program or project.

5.4.1(e) "Public Works Contract" means a contract with a **City Agency** for a construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a **City Agency** for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a **City Agency** for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

5.4.1(f) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.4.2 Ultra Low Sulfur Diesel Fuel

5.4.2(a) All **Contractors** shall use Ultra Low Sulfur Diesel Fuel in diesel-powered Nonroad Vehicles in the performance of this **Contract**.

5.4.2(b) Notwithstanding the requirements of Article 5.4.2(a), **Contractors** may use diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) to fulfill the requirements of this Article 5.4.2, where the Commissioner of the **City** Department of Environmental Protection ("DEP Commissioner") has issued a determination that a sufficient quantity of Ultra Low Sulfur Diesel Fuel is not available to meet the needs of **Agencies** and **Contractors**. Any such determination shall expire after six (6) months unless renewed.

5.4.2(c) **Contractors** shall not be required to comply with this Article 5.4.2 where the **City Agency** letting this **Contract** makes a written finding, which is approved, in writing, by the DEP Commissioner, that a sufficient quantity of Ultra Low Sulfur Diesel Fuel, or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is not available to meet the requirements of Section 24-163.3 of the Administrative Code, provided that such **Contractor** in its fulfillment of the

requirements of this **Contract**, to the extent practicable, shall use whatever quantity of Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is available. Any finding made pursuant to this Article 5.4.2(c) shall expire after sixty (60) **Days**, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the **City Agency** renews the finding in writing and such renewal is approved by the DEP Commissioner.

5.4.2(d) **Contractors** may check on determinations and approvals issued by the DEP Commissioner pursuant to Section 24-163.3 of the Administrative Code, if any, at www.dep.nyc.gov 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 fifteen (15) **Days** after the **Contractor** becomes aware or reasonably should be aware of each such condition, the **Contractor** must notify the **Resident Engineer** or **Engineer**, as directed by the **Commissioner**, 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. Such notice shall include a description of the construction activities that are or could be affected by the condition and may include any recommendations the **Contractor** may have to address the delay condition and any activities the **Contractor** may take to avoid or minimize the 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 for each such condition, the **Contractor** shall submit to the **Commissioner** a verified written statement of the details and estimates of the amounts of such damages, including categories of expected damages and projected monthly costs, together with documentary evidence of such damages as the **Contractor** may have at the time of submission ("statement of delay damages"), as further detailed in Article 11.6. The **Contractor** may submit the above statement within such additional time as may be granted by the **Commissioner** in writing upon written request therefor.

11.1.3 Articles 11.1.1 and 11.1.2 do not relieve the **Contractor** of its obligation to comply with the provisions of Article 44.

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 both 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 **Contrac**t necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the progress 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** to the extent required by the **Contract**, 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 Unreasonable delays attributable to the review of shop drawings, the issuance of change orders, or the cumulative impact of change orders that were not brought about by any act or omission of the **Contractor**.

11.4.1.3 The unavailability of the **Site** caused by acts or omissions of the **City**..

11.4.1.4 The issuance by the **Engineer** of a stop work order that was not brought about through any act or omission of the **Contractor**.

11.4.1.5 Differing site conditions or environmental hazards 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** if the **Work** will be or 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, or unless there is a provision in the **Contract** providing for additional compensation for early completion.

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 that would be generally recognized by a reasonably prudent contractor 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 act 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 estimated amount of additional compensation sought and a breakdown of that amount into categories as described 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 Additional insurance and bond costs;

11.7.1.5 Extended **Site** overhead, field office rental, salaries of field office staff, on-site project managers and superintendents, field office staff vehicles, **Project-**specific storage, field office utilities and telephone, and field office consumables;

11.7.1.6 Labor escalation costs based on actual costs;

11.7.1.7 Materials and equipment escalation costs based on applicable industry indices unless documentation of actual increased cost is provided;

11.7.1.8 Additional material and equipment storage costs based on actual documented costs and additional costs necessitated by extended manufacturer warranty periods; and

11.7.1.9 Extended home office overhead calculated based on the following formula:

(1) Subtract from the original **Contract** amount the amount earned by original contractual **Substantial Completion** date (not including change orders);

(2) Remove 15% overhead and profit from the calculation in item (1) by dividing the results of item (1) by 1.15;

(3) Multiply the result of item (2) by 7.25% for the total home office overhead;

(4) Multiply the result of item (3) by 7.25% for the total profit; and

(5) The total extended home office overhead will be the total of items (3) and (4).

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 11.7.1.8, and an additional overhead of 5% 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, except as provided in Article 11.7.1.9;

11.7.3.2 Consequential damages, including, but not limited to, construction or bridge loans or interest paid on such loans, 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 except those included in Article 11.7.1;

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 Any claims for delay 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 Any compensation provided to the **Contractor** in accordance with this Article 11 will be made pursuant to a claim filed with the **Comptroller**. Nothing in this Article 11 extends the time for the **Contractor** to file an action with respect to a claim within six months after **Substantial Completion** pursuant to Article 56.

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 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** or **Resident Engineer**, as applicable, 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/Resident 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/Resident Engineer** within ten (10) **Days** of the **Engineer/Resident 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** neither accepts the dates nor proposes alternative dates within ten (10) **Days**, the schedule proposed by the **Engineer/Resident Engineer** shall be deemed accepted. If the **Contractor** proposes alternative dates, then, within a reasonable time after receipt, the **Engineer/Resident Engineer**, in a written notification to the **Contractor**, shall approve the **Contractor's** completion dates or, if they are unable to agree, the **Engineer/Resident Engineer** shall establish dates for the completion of each item of **Work**. The latest completion date specified shall be the date for **Final Acceptance** of the **Work**.

14.3 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/Resident 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/Resident 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/Resident 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/**Resident Engineer**'s inspection if, upon such inspection, the **Engineer/Resident 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/Resident Engineer** for the purpose of **Substantial Completion** or **Final Acceptance** shall be made within fourteen (14) **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/Resident 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/Resident 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/Resident 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/Resident 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/Resident 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** or **Resident Engineer**, as applicable, 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/Resident 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.

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

[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.

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, the **Contractor** shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08 or greater limits required by the Agency in accordance with Schedule A. 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 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; (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 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.

22.3.4 Documentation confirming renewals of insurance shall be submitted to the **Commissione**r 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.

26.1.1For 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) x (HP rating) x (Fuel cost/gallon). Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by 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) x (HP rating) x (Fuel cost/gallon). In lieu of renting, the **City** reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 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 to the extent additional damages are being incurred for the same condition, 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. This Article 30.1 does not apply to claims submitted to the **Commissioner** pursuant to Article 11 or to claims disputing a determination under Article 27.

30.2 In addition to the foregoing statements, the **Contractor** shall, upon notice from the **Commissioner**, produce for examination at the **Contractor's** office, by the **Engineer**, **Architect** or **Project Manager**, all of its books of account, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**, and submit itself and persons in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.3 In addition to the statements required under Article 28 and this Article 30, the **Contractor** and/or its **Subcontractor** shall, within thirty (30) **Days** upon notice from the **Commissioner** or **Comptroller**, produce for examination at the **Contractor's** and/or **Subcontractor's** office, by a representative of either the **Commissioner** or **Comptroller**, all of its books of account, bid documents, financial statements, accountant workpapers, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**. Further, the **Contractor** and/or its **Subcontractor** shall submit any person in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.4 Unless the information and examination required under Article 30.3 is provided by the **Contractor** and/or its **Subcontractor** upon thirty (30) **Days'** notice from the **Commissioner** or **Comptroller**, or upon the **Commissioner's** or **Comptroller's** written authorization to extend the time to comply, the **City** shall be released from all claims arising under, relating to or by reason of this **Contract**, except for sums certified by the **Commissioner** to be due under the provisions of this **Contract**. It is further stipulated and agreed that no person has the power to waive any of the foregoing provisions and that in any action or dispute resolution procedure against the **City** to recover any sum in excess of the sums certified by the **Commissioner** to be due under or by reason of this **Contract**, the **Contractor** must allege in its complaint and prove, at trial or during such dispute resolution procedure, compliance with the provisions of this Article 30.

30.5 In addition, after the commencement of any action or dispute resolution procedure by the **Contractor** arising under or by reason of this **Contract**, the **City** shall have the right to require the **Contractor** to produce for examination under oath, up until the trial of the action or hearing before the Contract Dispute Resolution Board, the books and documents described in Article 30.3 and submit itself and all persons in its employ for examination under oath. If this Article 30 is not complied with as required, then the **Contractor** hereby consents to the dismissal of the action or dispute resolution procedure.

CHAPTER VII: POWERS OF THE RESIDENT ENGINEER,THE ENGINEER OR ARCHITECT AND THE COMMISSIONER

ARTICLE 31. THE RESIDENT ENGINEER

31.1 The **Resident Engineer** shall have the power to inspect, supervise, and control the performance of the **Work**, subject to review by the **Commissioner**. The **Resident Engineer** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 32. THE ENGINEER OR ARCHITECT OR PROJECT MANAGER

32.1 The **Engineer** or **Architect** or **Project Manager**, in addition to those matters elsewhere herein delegated to the **Engineer** and expressly made subject to his/her determination, direction or approval, shall have the power, subject to review by the **Commissioner**:

32.1.1 To determine the amount, quality, and location of the **Work** to be paid for hereunder; and

32.1.2 To determine all questions in relation to the **Work**, to interpret the **Contract Drawings**, **Specifications**, and **Addenda**, and to resolve all patent inconsistencies or ambiguities therein; and

32.1.3 To determine how the **Work** of this **Contract** shall be coordinated with **Work** of **Other Contractors** engaged simultaneously on this **Project**, including the power to suspend any part of the **Work**, but not the whole thereof; and

32.1.4 To make minor changes in the **Work** as he/she deems necessary, provided such changes do not result in a net change in the cost to the **City** or to the **Contractor** of the **Work** to be done under the **Contract**; and

32.1.5 To amplify the **Contract Drawings**, add explanatory information and furnish additional **Specifications** and drawings, consistent with this **Contract**.

32.2 The foregoing enumeration shall not imply any limitation upon the power of the **Engineer** or **Architect** or **Project Manager**, for it is the intent of this **Contract** that all of the **Work** shall generally be subject to his/her determination, direction, and approval, except where the determination, direction or approval of someone other than the **Engineer** or **Architect** or **Project Manager** is expressly called for herein.

32.3 The **Engineer** or **Architect** or **Project Manager** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 33. THE COMMISSIONER

33.1 The **Commissioner**, in addition to those matters elsewhere herein expressly made subject to his/her determination, direction or approval, shall have the power:

33.1.1 To review and make determinations on any and all questions in relation to this **Contract** and its performance; and

33.1.2 To modify or change this **Contract** so as to require the performance of **Extra Work** (subject, however, to the limitations specified in Article 25) or the omission of **Contract Work**; and

33.1.3 To suspend the whole or any part of the **Work** whenever in his/her judgment such suspension is required:

33.1.3(a) In the interest of the **City** generally; or

33.1.3(b) To coordinate the **Work** of the various contractors engaged on this **Project** pursuant to the provisions of Article 12; or

33.1.3(c) To expedite the completion of the entire **Project** even though the completion of this particular **Contract** may thereby be delayed.

ARTICLE 34. NO ESTOPPEL

34.1 Neither the **City** nor any **Agency**, official, agent or employee thereof, shall be bound, precluded or estopped by any determination, decision, approval, order, letter, payment or certificate made or given under or in connection with this **Contract** by the **City**, the **Commissioner**, the **Engineer**, the **Resident Engineer**, or any other official, agent or employee of the **City**, either before or after the final completion and acceptance of the **Work** and payment therefor:

34.1.1 From showing the true and correct classification, amount, quality or character of the **Work** actually done; or that any such determination, decision, order, letter, payment or certificate was untrue, incorrect or improperly made in any particular, or that the **Work**, or any part thereof, does not in fact conform to the requirements of this **Contract**; and

34.1.2 From demanding and recovering from the **Contractor** any overpayment made to it, or such damages as the **City** may sustain by reason of the **Contractor's** failure to perform each and every part of its **Contract**.

CHAPTER VIII: LABOR PROVISIONS

ARTICLE 35. EMPLOYEES

35.1 The **Contractor** and its **Subcontractors** shall not employ on the **Work**:

35.1.1 Anyone who is not competent, faithful and skilled in the **Work** for which he/she shall be employed; and whenever the **Commissioner** shall inform the **Contractor**, in writing, that any employee is, in his/her opinion, incompetent, unfaithful or disobedient, that employee shall be discharged from the **Work** forthwith, and shall not again be employed upon it; or

35.1.2 Any labor, materials or means whose employment, or utilization during the course of this **Contract**, may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of **Work** or similar troubles by workers employed by the **Contractor** or its **Subcontractors**, or by any of the trades working in or about the buildings and premises where **Work** is being performed under this **Contract**, or by **Other Contractors** or their **Subcontractors** pursuant to other contracts, or on any other building or premises owned or operated by the **City**, its **Agencies**, departments, boards or authorities. Any violation by the **Contractor** of this requirement may, upon certification of the **Commissioner**, be considered as proper and sufficient cause for declaring the **Contractor** to be in default, and for the **City** to take action against it as set forth in Chapter X of this **Contract**, or such other article of this **Contract** as the Commissioner may deem proper; or

35.1.3 In accordance with Section 220.3-e of the Labor Law of the State of New York (hereinafter "Labor Law"), the **Contractor** and its **Subcontractors** shall not employ on the **Work** any apprentice, unless he/she is a registered individual, under a bona fide program registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the **Contractor** as to its work force on any job under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the wage rate determined by the **Comptroller** of the **City** for the classification of **Work** actually performed. The **Contractor** or **Subcontractor** will be required to furnish written evidence of the registration of its program and apprentices as well as all the appropriate ratios and wage rates, for the area of the construction prior to using any apprentices on the **Contract Work**.

35.2 If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand ($250,000) dollars, all laborers, workers, and mechanics employed in the performance of the **Contract** on the public work site, either by the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by the **Contract**, shall be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

35.3 In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the Administrative Code, respectively,

35.3.1 The **Contractor** shall not take an adverse personnel action with respect to an officer or employee in retaliation for such officer or employee making a report of information concerning conduct which such officer or employee knows or reasonably believes to involve corruption, criminal activity, conflict of interest, gross mismanagement or abuse of authority by any officer or employee relating to this **Contract** to (a) the Commissioner of the Department of Investigation, (b) a member of the New York City Council, the Public Advocate, or the **Comptroller**, or (c) the **CCPO**, **ACCO**, **Agency** head, or **Commissioner**.

35.3.2 If any of the **Contractor**'s officers or employees believes that he or she has been the subject of an adverse personnel action in violation of Article 35.3.1, he or she shall be entitled to bring a cause of action against the **Contractor** to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (a) an injunction to restrain continued retaliation, (b) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (c) reinstatement of full fringe benefits and seniority rights, (d) payment of two times back

pay, plus interest, and (e) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

35.3.3 The **Contractor** shall post a notice provided by the **City** in a prominent and accessible place on any site where work pursuant to the **Contract** is performed that contains information about:

35.3.3(a) how its employees can report to the New York City Department of Investigation allegations of fraud, false claims, criminality or corruption arising out of or in connection with the **Contract**; and

35.3.3(b) the rights and remedies afforded to its employees under Administrative Code sections 7-805 (the New York City False Claims Act) and 12-113 (the Whistleblower Protection Expansion Act) for lawful acts taken in connection with the reporting of allegations of fraud, false claims, criminality or corruption in connection with the **Contract**.

35.3.4 For the purposes of this Article 35.3, "adverse personnel action" includes dismissal, demotion, suspension, disciplinary action, negative performance evaluation, any action resulting in loss of staff, office space, equipment or other benefit, failure to appoint, failure to promote, or any transfer or assignment or failure to transfer or assign against the wishes of the affected officer or employee.

35.3.5 This Article 35.3 is applicable to all of the **Contractor**'s **Subcontractors** having subcontracts with a value in excess of $100,000; accordingly, the **Contractor** shall include this rider in all subcontracts with a value a value in excess of $100,000.

35.4 Article 35.3 is not applicable to this **Contract** if it is valued at $100,000 or less. Articles 35.3.1, 35.3.2, 35.3.4, and 35.3.5 are not applicable to this **Contract** if it was solicited pursuant to a finding of an emergency.

35.5 Paid Sick Leave Law.

35.5.1 Introduction and General Provisions.

35.5.1(a) 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.[2] Contractors of the **City** or of other governmental entities may be required to provide sick time pursuant to the PSLL.

35.5.1(b) 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").

[2] 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.

35.5.1(c) The **Contractor** agrees to comply in all respects with the PSLL and the Rules, and as amended, if applicable, in the performance of this **Contract**. The **Contractor** further acknowledges that such compliance is a material term of this **Contract** and that failure to comply with the PSLL in performance of this **Contract** may result in its termination.

35.5.1(d) The **Contractor** must notify the **Agency Chief Contracting Officer** of the **Agency** 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 **Contract**. Additionally, the **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.

35.5.1(e) The PSLL is summarized below for the convenience of the **Contractor**. The **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 the **Contractor** can get more information about how to comply with the PSLL. The **Contractor** acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

35.5.2 Pursuant to the PSLL and the Rules: Applicability, Accrual, and Use.

35.5.2(a) 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 be provided at the greater of the employee's regular hourly rate or the minimum wage. Employers are not required to provide more than 40 hours of sick time to an employee in any Year.

35.5.2(b) 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 40 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.

35.5.2(c) An employee entitled to sick time pursuant to the PSLL may use sick time for any of the following:

i. 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;
ii. 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;

iii. closure of such employee's place of business by order of a public official due to a public health emergency; or

iv. such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency.

35.5.2(d) 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.

35.5.2(e) 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.

35.5.2(f) 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.

35.5.3 Exemptions and Exceptions. Notwithstanding the above, the PSLL does not apply to any of the following:

35.5.3(a) an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;

35.5.3(b) an employee covered by a valid collective bargaining agreement in effect on April 1, 2014, until the termination of such agreement;

35.5.3(c) an employee in the construction or grocery industry covered by a valid collective bargaining agreement if the provisions of the PSLL are expressly waived in such collective bargaining agreement;

35.5.3(d) 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 PSLL for such employee;

35.5.3(e) 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;

35.5.3(f) an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

35.5.3(g) 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

35.5.3(h) a participant in a Work Experience Program (WEP) under section 336-c of the New York State Social Services Law.

35.5.4 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 PSLL. In addition, an employer may not interfere with any investigation, proceeding, or hearing pursuant to the PSLL.

35.5.5 Notice of Rights.

35.5.5(a) An employer must provide its employees with written notice of their rights pursuant to the PSLL. 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.

35.5.5(b) 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.

35.5.6 Records. An employer must retain records documenting its compliance with the PSLL 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 PSLL.

35.5.7 Enforcement and Penalties.

35.5.7(a) Upon receiving a complaint alleging a violation of the PSLL, 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 PSLL has occurred, it has the right to issue a notice of violation to the employer.

35.5.7(b) 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 PSLL 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.

35.5.8 More Generous Polices and Other Legal Requirements. Nothing in the PSLL 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 PSLL 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 PSLL may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

35.6 HireNYC: Hiring and Reporting Requirements. This Article 35.6 applies to construction contracts of $1,000,000 or more. The **Contractor** shall comply with the requirements of Articles 35.6.1-35.6.5 for all non-trades jobs (e.g., for an administrative position arising out of **Work** ant located in New York City). The **Contractor** shall reasonably cooperate with SBS and the **City** on specific outreach events, including "Hire-on-the-Spot" events, for the hiring of trades workers in connection with the **Work**. If provided elsewhere in this **Contract**, this **Contract** is subject to a project labor agreement.

35.6.1 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.

35.6.2 Job Posting Requirements.

35.6.2(a) 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.

35.6.2(b) 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.

35.6.2(c) 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** pursuant to Charter section 328 and each anniversary date.

35.6.2(d) 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 Article 35.6 shall be interpreted so as to require the **Contractor** to employ any particular worker.

35.6.2(e) In addition, the provisions of this Article 35.6 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 Article 35.6.1, above, and, if such positions subsequently become open, then the remaining provisions of this Article 35.6 will apply.

35.6.3 Breach and Liquidated Damages. If the **Contractor** fails to comply with the terms of the **ContrSact** and this Article 35.6 (l) 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 **Agency** may assess liquidated damages in the amount of two-thousand five hundred dollars ($2,500) per breach. For all other events of noncompliance with the terms of this Article 35.6, 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 Article 35.6 during the term of the **Contract**, the **City** may hold the **Contractor** in default of this **Contract**.

35.6.4 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.

35.6.5 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**, 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 as otherwise requested by the **City**.

35.6.6 Federal Hiring Requirements. If this **Contract** is federally funded (as indicated elsewhere in this Contract), the **Contractor** shall comply with all federal hiring requirements as may be set forth in this **Contract**, including, as applicable: (a) 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 and 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.

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 If the **Commissioner** exercises his/her right to complete or cause to complete any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List** pursuant to Article 54, any such action shall be commenced within six (6) months from the date the **Commissioner** notifies the **Contractor** in writing that he/she has exercised such right. 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 asses, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

69.3.1(i) appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 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 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 as shown in Schedule A.

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 shown in Schedule A, this said sum being the amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract**.

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the 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 or 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. EXAMINATION AND VIEWING OF SITE, CONSIDERATION OF OTHER SOURCES OF INFORMATION AND CHANGED SITE CONDITIONS

78.1 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 and hazards on, about or above the **Site** relating to or affecting in any way the performance of the **Work** to be done under the **Contract** that were or should have been known by a reasonably prudent bidder. To arrange a date for visiting the **Site**, bidders are to contact the **Agency** contact person specified in the bid documents.

78.2 Should the **Contractor** encounter during the progress of the Work site conditions or environmental hazards at the **Site** materially differing from any shown on the **Contract Drawings** or indicated in the **Specifications** or such conditions or environmental hazards as could not reasonably have been anticipated by the **Contractor**, which conditions or hazards 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 or hazards before they are disturbed. The **Commissioner** shall thereupon promptly investigate the conditions or hazards. If the **Commissioner** finds that they do so materially differ, and that they could not have been reasonably anticipated by the **Contractor**, the **Contract** may be modified with the **Commissioner**'s written approval.

ARTICLE 79. 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: _____
Commissioner

Digitally signed by Jamie Torres-Springer.
DN: cn=Jamie Torres-Springer, o=DDC, ou=Exec, email=torresspringerj@ddc.nyc.gov, c=US
Date: 2021.05.14 15:19:45 -04'00'

CONTRACTOR: PEN ENTERPRISES INC.

By: _____
(Member of Firm or Officer of Corporation)

Title: _____

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

_____
Secretary

(Seal)

_____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of NY County of KINGS ss:

On this 13 day of May, 2021 before me personally came Philip Ettedgui to me known who, being by me duly sworn did depose and say that he resides at LAWRENCE NY 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 Commissioner of Deeds of said corporation, and that he signed his name thereto by like order.

CATHERINE NINIVE
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 2023

Notary Public or Commissioner of Deeds

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 or Commissioner of Deeds

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 or Commissioner of Deeds

ACKNOWLEDGEMENT BY COMMISSIONER

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally came _____ 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 acknowledged to me that he executed the same as Deputy Commissioner for the purposes therein mentioned.

_____
Notary Public or Commissioner of Deeds

A U T H O R I T Y

MAYOR'S CERTIFICATE NO. CBX DATED
BUDGET DIRECTOR'S CERTIFICATE NO. 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

One Million Four Hundred Forty Thousand Three

Hundred dollars

Dollars ($ 1,440,300.00)

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

Department of Design and Construction

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

Digitally signed by Jamie Torres-Springer
DN: cn=Jamie Torres-Springer, o=DDC, ou=Exec, email=torresspringerj@ddc.nyc.gov, c=US
Date: 2021.05.14 15:20:16 -04'00'

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 100 to 103): Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

Bond # 5936491

Issued in Triplicate

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS:,

That we, Pen Enterprises, Inc

521 Coney Island Avenue

Brooklyn, NY 11218

hereinafter referred to as the "Principal,"

and, Old Republic Insurance Company

445 S. Moorland Road

Brookfield, WI 53005

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 One Million Four Hundred Forty Thousand Three Hundred and 00/100 Dollars

($ 1,440,300.00) Dollars, lawful money of the United States for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

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

FMS ID: PV791-TNC; E-PIN: 85020B0075001: DDC PIN: 8502020PV0004C

Theater for the New City - HVAC Replacement - Borough of Manhattan

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

<u>Performance Bond #1 (Pages 100 to 103)</u>: 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.

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 100 to 103): Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

13th day of May, 2021.

(Seal)

Pen Enterprises, Inc. (L.S.)
Principal

By: _____
Philip Ettedgui, President

(Seal)

Surety

By: Old Republic Insurance Company
_____

(Seal)

Surety

By: _____
Emanuel Hatjygeorge, 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 #1 (Pages 100 to 103): 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.m.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of NY County of Kings ss:

On this 13 day of May, 20 21 before me personally came Philip Ettedgui
to me known, who, being by me duly sworn did depose and say that he/she resides at LAWRENCE NY
; that he/she is the President
of the corporation described in and which executed the foregoing instrument; and 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.

CATHERINE ANNIVE
Commissioner of Deeds, CNY
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 20 23.

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 dispose 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.

ACKNOWLEDGMENT

OF CORPORATE SURETY

STATE OF NEW YORK)

ss:

COUNTY OF WESTCHESTER)

On this 13th day of May, 2021 before me appeared Emanuel Hatjygeorge to me personally known, who being by me duly sworn, did say that he is the aforesaid officer or attorney in fact of the Old Republic Insurance Company, a corporation; that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the aforesaid officer, by authority of its Board of Directors and the aforesaid officer acknowledged said instrument to be the free act and deed of said corporation.

ALFRED CELENTANO
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01CE6416701
Qualified in Westchester County
Commission Expires April 26, 2025

OLD REPUBLIC INSURANCE COMPANY

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That OLD REPUBLIC INSURANCE COMPANY, a Pennsylvania stock insurance corporation, does make, constitute and appoint:

EMANUEL HATJYGEORGE of ELMSFORD, NY

its true and lawful Attorney(s)-in-Fact, with full power and authority, not exceeding $50,000,000, for and on behalf of the Company as surety, to execute and deliver and affix the seal of the Company thereto (if a seal is required), bonds, undertakings, recognizances or other written obligations in the nature thereof, (other than self-insurance workers compensation bonds guaranteeing payment of benefits, asbestos abatement contract bonds, waste management bonds, hazardous waste remediation bonds or black lung bonds), as follows:

ALL WRITTEN INSTRUMENTS

and to bind OLD REPUBLIC INSURANCE COMPANY thereby, and all of the acts of said Attorneys-in-Fact, pursuant to these presents, are ratified and confirmed. This appointment is made under and by authority of the board of directors at a meeting held on March 14, 2014. This Power of Attorney is signed and sealed by facsimile under and by the authority of the following resolutions adopted by the board of directors of the OLD REPUBLIC INSURANCE COMPANY on March 14, 2014.

RESOLVED FURTHER, that the chairman, president or any vice president of the Company's surety division, in conjunction with the secretary or any assistant secretary of the Company, be and hereby are authorized and directed to execute and deliver, to such persons as such officers of the Company may deem appropriate, Powers of Attorney in the form presented to and attached to the minutes of this meeting, authorizing such persons to execute and deliver and affix the seal of the Company to bonds, undertakings, recognizances, and suretyship obligations of all kinds, other than bail bonds, bank depository bonds, mortgage deficiency bonds, mortgage guaranty bonds, guarantees of installment paper and not guaranty bonds. The said officers may revoke any Power of Attorney previously granted to any such person. The authority of any Power of Attorney granted by any such officer of the Company as aforesaid shall not exceed fifty million dollars ($50,000,000.00), except (a) bonds required to be filed as open penalty bonds, and (b) bonds filed with any court or governmental authority requiring an unlimited penalty in bonds filed in that court.

RESOLVED FURTHER that any bond, undertaking, recognizance, or suretyship obligation shall be valid and binding upon the Company

(i) when signed by chairmen, president or any vice president of the Company's surety division and attested and sealed (if a seal be required) by any secretary or assistant secretary; or

(ii) when signed by a duly authorized Attorney-in-Fact and sealed with the seal of the Company (if a seal be required).

RESOLVED FURTHER, that the signature of any officer designated above, and the seal of the Company, may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, OLD REPUBLIC INSURANCE COMPANY has caused these presents to be signed by its proper officer, and its corporate seal to be affixed this 28th day of August, 2019.

OLD REPUBLIC INSURANCE COMPANY

Sheila M. Applegate
Assistant Secretary

Alan Pavlic
Vice President

STATE OF WISCONSIN, COUNTY OF WAUKESHA - SS

On this 28th day of August, 2019, personally came before me, Alan Pavlic and Sheila M. Applegate, to me known to be the individuals and officers of the OLD REPUBLIC INSURANCE COMPANY who executed the above instrument, and they each acknowledged the execution of the same, and being by me duly sworn, did severally depose and say: that they are the said officers of the corporation aforesaid, and that the seal affixed to the above instrument is the seal of the corporation, and that said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority of the board of directors of said organization.

Kathryn R. Pearson
Notary Public

My Commission Expires: September 28, 2022

(Expiration of notary's commission does not invalidate this instrument)

CERTIFICATE

I, the undersigned, assistant secretary of the OLD REPUBLIC INSURANCE COMPANY, a Pennsylvania corporation, CERTIFY that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the Resolutions of the board of directors set forth in the Power of Attorney, are now in force.

Signed and sealed at the City of Brookfield, WI this 13th day of May, 2021.

Sheila M. Applegate
Assistant Secretary

95-0065

ORSC 11008 (6-93)

OLD REPUBLIC INSURANCE COMPANY
OF MT. PLEASANT, PENNSYLVANIA

STATUTORY FINANCIAL STATEMENT AS OF DECEMBER 31, 2020

ADMITTED ASSETS

Bonds	$1,812,061,905
Common stocks	754,073,091
Cash, cash equivalents and short-term investments	120,480,692
Bonds, short-term investments and cash held under retrospective rating agreements	30,128,491
Premiums and considerations – uncollected premiums and agents' balances in the course of collection	364,550,945
Deferred premiums, agents' balances and installments booked but deferred and not yet due	6,072,420
Accrued retrospective premiums	427,106
Funds held by or deposited with reinsured companies	569,034
Other amounts receivable under reinsurance contracts	696,265
Amounts recoverable from reinsurers	63,668,406
Electronic data processing equipment and software	216,577
Investment income due and accrued	16,677,557
Receivables from parent, subsidiaries and affiliates	9,635,548
Other assets	6,388,963
TOTAL ADMITTED ASSETS	$3,185,646,999

LIABILITIES AND SURPLUS

Losses	$881,402,375
Reinsurance payable on paid losses and loss adjustment expenses	10,833,823
Loss adjustment expenses	169,246,286
Commissions payable, contingent commissions and other similar charges	6,966,195
Other expenses (excluding taxes, licenses and fees)	21,565,624
Taxes, licenses and fees (excluding federal income taxes)	71,692,142
Current federal income taxes	4,263,385
Net deferred tax liability	6,215,472
Unearned premiums	315,918,061
Dividends declared and unpaid - policyholders	147,614
Advance premium	492,897
Ceded reinsurance premiums payable (net of ceding commissions)	217,684,554
Funds held by company under reinsurance treaties	99,267,947
Amounts withheld or retained by company for account of others	38,963,460
Remittances and items not allocated	29,403,261
Provision for reinsurance	22,966,723
Payable to parent, subsidiaries and affiliates	63,129,510
Other liabilities	3,288,237
TOTAL LIABILITIES	$1,963,447,566
Common capital stock	3,800,004
Surplus notes	155,000,000
Gross paid in and contributed surplus	103,869,422
Unassigned funds (surplus)	959,530,007
SURPLUS AS REGARDS POLICYHOLDERS	$1,222,199,433
TOTAL LIABILITIES AND SURPLUS	$3,185,646,999

Securities carried at $367,151,205 are deposited with States or Other Authorities as required by law.

STATE OF WISCONSIN)
)SS
COUNTY OF WAUKESHA)

Alan P. Pavlic, Vice President, and Karen J. Haffner, Vice President of Old Republic Insurance Company of Mt. Pleasant, Pennsylvania being duly sworn, each for himself, deposes and says that they are the above described officers of the said company, and that on the 31st day of December, 2020, the company was actually possessed of the assets set forth in the foregoing statement and that such assets were available for the payment of losses and claims and held for the protection of its policyholders and creditors, except as here-in-before indicated, and that the foregoing statement is a correct exhibit of such assets and liabilities of the said company on the 31st day of December, 2020, according to the best of their information, knowledge and belief, respectively.

Alan P. Pavlic
Alan P. Pavlic, Vice President

Karen J. Haffner
Karen J. Haffner, Vice President

Sworn to and subscribed before me this 15th day of March, 2021.

Deborah L. Voigts
Notary Public, State of Wisconsin
My Commission expires: July 31, 2023



<u>Performance Bond #2 (Pages 104 to 107)</u>: Use if the total contract price is more than $5 Million.

PERFORMANCE BOND #2

KNOW ALL PERSONS BY THESE PRESENTS:,
That we, _____

_____

_____

hereinafter referred to as the "Principal,"
and, _____

_____

_____

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

_____

_____

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

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

_____

_____

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

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

<u>Performance Bond #2 (Pages 104 to 107)</u>: Use if the total contract price is more than $5 Million.

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.

<u>Performance Bond #2 (Pages 104 to 107)</u>: Use if the total contract price is more than $5 Million.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

_____ day of _____ 20 _____ .

(Seal)

_____(L.S.)
Principal

By:_____.

(Seal)

Surety

By:_____.
_____.

(Seal) Surety

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 #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of _____ County of _____ ss:

On this _____ day of _____, 20 _____ before me personally came _____,
to me known, who, being by me duly sworn did depose and say that he resides at _____
_____ ; that he/she is the _____
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.

_____
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 108 to 111): Use for any contract for which a Payment Bond is required.

PAYMENT BOND

Issued in Triplicate

KNOW ALL PERSONS BY THESE PRESENTS, That we, Pen Enterprises, Inc.
521 Coney Island Avenue; Brooklyn, NY 11218

hereinafter referred to as the "Principal", and Old Republic Insurance Company
445 S. Moorland Road
Brookfield, WI 53005

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

One Million Four Hundred Forty Thousand Three Hundred and 00/100 Dollars

($1,440,300.00) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

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

FMS ID: PV791-TNC; E-PIN: 85020B0075001; DDC PIN: 8502020PV0004C
Theater for the New City - HVAC Replacement - Borough of Manhattan

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

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so engaged who perform the work of laborers or mechanics at or in the vicinity of the site

of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be place 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 108 to 111): Use for any contract for which a Payment Bond is required.

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 13th day of May, 2021.

(Seal) Pen Enterprises, Inc. (L.S.)
Principal

By: Philip Ettedgui, President

(Seal) Old Republic Insurance Company
Surety

By: Emanuel Hatjygeorge, 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 108 to 111): Use for any contract for which a Payment Bond is required.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of NY County of Kings ss:

On this 13 day of May, 2021, before me personally came Philip Stefano to me known, who, being by me duly sworn did depose and say that he resides at _____ LAWRENCE NY 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.

CATHERINE NINIVE
Commissioner of Deeds, CNY
No. 2-13294
Qualified in Kings County
Commission Expires April 1, 2023

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

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

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

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

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

ACKNOWLEDGMENT

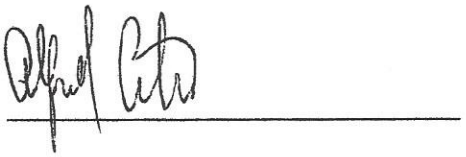
OF CORPORATE SURETY

STATE OF NEW YORK)

ss:

COUNTY OF WESTCHESTER)

On this 13th day of May, 2021 before me appeared Emanuel Hatjygeorge to me personally known, who being by me duly sworn, did say that he is the aforesaid officer or attorney in fact of the Old Republic Insurance Company, a corporation; that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the aforesaid officer, by authority of its Board of Directors and the aforesaid officer acknowledged said instrument to be the free act and deed of said corporation.



ALFRED CELENTANO
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01CE6416701
Qualified in Westchester County
Commission Expires April 26, 2025

OLD REPUBLIC INSURANCE COMPANY

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That OLD REPUBLIC INSURANCE COMPANY, a Pennsylvania stock insurance corporation, does make, constitute and appoint:

EMANUEL HATJYGEORGE of ELMSFORD, NY

its true and lawful Attorney(s)-in-Fact, with full power and authority, not exceeding $50,000,000, for and on behalf of the Company as surety, to execute and deliver and affix the seal of the Company thereto (if a seal is required), bonds, undertakings, recognizances or other written obligations in the nature thereof, (other than self-insurance workers compensation bonds guaranteeing payment of benefits, asbestos abatement contract bonds, waste management bonds, hazardous waste remediation bonds or black lung bonds), as follows:

ALL WRITTEN INSTRUMENTS

and to bind OLD REPUBLIC INSURANCE COMPANY thereby, and all of the acts of said Attorneys-in-Fact, pursuant to these presents, are ratified and confirmed. This appointment is made under and by authority of the board of directors at a meeting held on March 14, 2014. This Power of Attorney is signed and sealed by facsimile under and by the authority of the following resolutions adopted by the board of directors of the OLD REPUBLIC INSURANCE COMPANY on March 14, 2014.

RESOLVED FURTHER, that the chairman, president or any vice president of the Company's surety division, in conjunction with the secretary or any assistant secretary of the Company, be and hereby are authorized and directed to execute and deliver, to such persons as such officers of the Company may deem appropriate, Powers of Attorney in the form presented to and attached to the minutes of this meeting, authorizing such persons to execute and deliver and affix the seal of the Company to bonds, undertakings, recognizances, and suretyship obligations of all kinds, other than bail bonds, bank depository bonds, mortgage deficiency bonds, mortgage guaranty bonds, guarantees of installment paper and not guaranty bonds. The said officers may revoke any Power of Attorney previously granted to any such person. The authority of any Power of Attorney granted by any such officer of the Company as aforesaid shall not exceed fifty million dollars ($50,000,000.00), except (a) bonds required to be filed as open penalty bonds, and (b) bonds filed with any court or governmental authority requiring an unlimited penalty in bonds filed in that court.

RESOLVED FURTHER that any bond, undertaking, recognizance, or suretyship obligation shall be valid and binding upon the Company

(i) when signed by chairmen, president or any vice president of the Company's surety division and attested and sealed (if a seal be required) by any secretary or assistant secretary; or

(ii) when signed by a duly authorized Attorney-in-Fact and sealed with the seal of the Company (if a seal be required).

RESOLVED FURTHER, that the signature of any officer designated above, and the seal of the Company, may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, OLD REPUBLIC INSURANCE COMPANY has caused these presents to be signed by its proper officer, and its corporate seal to be affixed this 28th day of August, 2019.

OLD REPUBLIC INSURANCE COMPANY

Sheila M. Applegate
Assistant Secretary

Alan Pavlic
Vice President

STATE OF WISCONSIN, COUNTY OF WAUKESHA - SS

On this 28th day of August, 2019, personally came before me, Alan Pavlic and Sheila M. Applegate, to me known to be the individuals and officers of the OLD REPUBLIC INSURANCE COMPANY who executed the above instrument, and they each acknowledged the execution of the same, and being by me duly sworn, did severally depose and say: that they are the said officers of the corporation aforesaid, and that the seal affixed to the above instrument is the seal of the corporation, and that said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority of the board of directors of said organization.

Kathryn R. Pearson
Notary Public

My Commission Expires: September 28, 2022

(Expiration of notary's commission does not invalidate this instrument)

CERTIFICATE

I, the undersigned, assistant secretary of the OLD REPUBLIC INSURANCE COMPANY, a Pennsylvania corporation, CERTIFY that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the Resolutions of the board of directors set forth in the Power of Attorney, are now in force.

Signed and sealed at the City of Brookfield, WI this 13th day of May, 2021.

Sheila M. Applegate
Assistant Secretary

95-0065

ORSC 11008 (6-93)

OLD REPUBLIC INSURANCE COMPANY
OF MT. PLEASANT, PENNSYLVANIA

STATUTORY FINANCIAL STATEMENT AS OF DECEMBER 31, 2020

ADMITTED ASSETS

Bonds	$1,912,091,905
Common stocks	794,573,931
Cash, cash equivalents and short-term investments	120,480,692
Bonds, short-term investments and cash held under retrospective rating agreements	30,128,491
Premiums and considerations – uncollected premiums and agents' balances in the course of collection	364,550,945
Deferred premiums, agents' balances and installments booked but deferred and not yet due	6,072,420
Accrued retrospective premiums	427,194
Funds held by or deposited with reinsured companies	569,034
Other amounts receivable under reinsurance contracts	696,265
Amounts recoverable from reinsurers	63,668,406
Electronic data processing equipment and software	216,577
Investment income due and accrued	16,677,557
Receivables from parent, subsidiaries and affiliates	9,635,548
Other assets	6,388,963
TOTAL ADMITTED ASSETS	$3,185,646,999

LIABILITIES AND SURPLUS

Losses	$881,402,375
Reinsurance payable on paid losses and loss adjustment expenses	10,833,823
Loss adjustment expenses	169,246,286
Commissions payable, contingent commissions and other similar charges	6,966,195
Other expenses (excluding taxes, licenses and fees)	21,565,624
Taxes, licenses and fees (excluding federal income taxes)	71,692,142
Current federal income taxes	4,263,385
Net deferred tax liability	6,215,472
Unearned premiums	315,918,061
Dividends declared and unpaid - policyholders	147,614
Advance premium	492,897
Ceded reinsurance premiums payable (net of ceding commissions)	217,684,554
Funds held by company under reinsurance treaties	99,267,947
Amounts withheld or retained by company for account of others	38,963,460
Remittances and items not allocated	29,403,261
Provision for reinsurance	22,966,723
Payable to parent, subsidiaries and affiliates	63,129,510
Other liabilities	3,288,237
TOTAL LIABILITIES	$1,963,447,566
Common capital stock	3,800,004
Surplus notes	155,000,000
Gross paid in and contributed surplus	103,869,422
Unassigned funds (surplus)	959,530,007
SURPLUS AS REGARDS POLICYHOLDERS	$1,222,199,433
TOTAL LIABILITIES AND SURPLUS	$3,185,646,999

Securities carried at $367,151,205 are deposited with States or Other Authorities as required by law.

STATE OF WISCONSIN)
)SS
COUNTY OF WAUKESHA)

Alan P. Pavlic, Vice President, and Karen J. Haffner, Vice President of Old Republic Insurance Company of Mt. Pleasant, Pennsylvania being duly sworn, each for himself, deposes and says that they are the above described officers of the said company, and that on the 31st day of December, 2020, the company was actually possessed of the assets set forth in the foregoing statement and that such assets were available for the payment of losses and claims and held for the protection of its policyholders and creditors, except as here-in-before indicated, and that the foregoing statement is a correct exhibit of such assets and liabilities of the said company on the 31st day of December, 2020, according to the best of their information, knowledge and belief, respectively.

Alan P. Pavlic

Alan P. Pavlic, Vice President

Karen J. Haffner

Karen J. Haffner, Vice President

Sworn to and subscribed before me this 15th day of March, 2021.

Deborah L. Voigts

Notary Public, State of Wisconsin
My Commission expires: July 31, 2023



DEBORAH L. VOIGTS NOTARY PUBLIC STATE OF WISCONSIN

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 5/13/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
AssuredPartners Northeast, LLC.
100 Baylis Road
Suite 300
Melville NY 11747

CONTACT NAME: Tracy Anziano
PHONE (A/C, No, Ext): (631) 465-4000 FAX (A/C, No):
E-MAIL ADDRESS: tracy.anziano@assuredpartners.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Stillwater Property & Casualty	16578
INSURER B: State Insurance Fund	36102
INSURER C: ShelterPoint Life Insurance	81434N
INSURER D:	
INSURER E:	
INSURER F:	

INSURED
Pen Enterprises Inc.
521 Coney Island Ave.
Brooklyn NY 11218

COVERAGES

CERTIFICATE NUMBER: CL2112565720 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR X Contractual Liab GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:	X	Y	GLGR3765-00	2/1/2021	2/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 100,000 $ 5,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			BAGR3765-00	2/1/2021	2/1/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: Y If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		G 1230 529-8	5/1/2021	5/1/2022	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
C	NYS Disability			DBL-102169	6/18/2020	6/17/2022	Statutory	

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

Ref: FMS ID: PV791-TNC; E-PIN: 85020B0075001; DDC PIN: 8502020PV0004C; THEATER FOR THE NEW CITY- HVAC REPLACEMENT-BOROUGH OF MANHATTAN 155 1ST AVE NY NY 10003;
The following are included as additional insureds if required by written contract, subject to the terms and conditions of stated policies: NYC Department of Design and Construction; City of New York including its officials and employees; Theater for the New City; General Liability Coverage applies on a primary and non-contributory basis with a Waiver of subrogation in favor of the Additional Insureds.

CERTIFICATE HOLDER

NYC Department of Design and Construction
30-30 Thomson Avenue
Long Island City, NY 11101

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Philip Colletta/TBA

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NYSIF
New York State Insurance Fund

199 CHURCH STREET, NEW YORK, N.Y. 10007-1100
| nysif.com

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE (RENEWED)

^^^^^^ 113322341
KEEVILY,SPERO-WHITELAW INC.
500 MAMARONECK AVENUE
HARRISON NY 10528

SCAN TO VALIDATE
AND SUBSCRIBE

POLICYHOLDER	CERTIFICATE HOLDER
PEN ENTERPRISES INC 521 CONEY ISLAND AVENUE BROOKLYN NY 11218	DDC - DEPARTMENT OF DESIGN & CONSTRUCTION 30-30 THOMSON AVENUE LONG ISLAND CITY NY 11101

POLICY NUMBER	CERTIFICATE NUMBER	POLICY PERIOD	DATE
G1230 529-8	304385	05/01/2021 TO 05/01/2022	3/19/2021

THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 1230 529-8, COVERING THE ENTIRE OBLIGATION OF THIS POLICYHOLDER FOR WORKERS' COMPENSATION UNDER THE NEW YORK WORKERS' COMPENSATION LAW WITH RESPECT TO ALL OPERATIONS IN THE STATE OF NEW YORK, EXCEPT AS INDICATED BELOW.

IF YOU WISH TO RECEIVE NOTIFICATIONS REGARDING SAID POLICY, INCLUDING ANY NOTIFICATION OF CANCELLATIONS, OR TO VALIDATE THIS CERTIFICATE, VISIT OUR WEBSITE AT HTTPS://WWW.NYSIF.COM/CERT/CERTVAL.ASP. THE NEW YORK STATE INSURANCE FUND IS NOT LIABLE IN THE EVENT OF FAILURE TO GIVE SUCH NOTIFICATIONS.

THIS POLICY DOES NOT COVER CLAIMS OR SUITS THAT ARISE FROM BODILY INJURY SUFFERED BY THE OFFICERS OF THE INSURED CORPORATION.

PRESIDENT
PHILIP ETTEDGUI
1 OF 1
PEN ENTERPRISES INC

THE POLICY INCLUDES A WAIVER OF SUBROGATION ENDORSEMENT UNDER WHICH NYSIF AGREES TO WAIVE ITS RIGHT OF SUBROGATION TO BRING AN ACTION AGAINST THE CERTIFICATE HOLDER TO RECOVER AMOUNTS WE PAID IN WORKERS' COMPENSATION AND/OR MEDICAL BENEFITS TO OR ON BEHALF OF AN EMPLOYEE OF OUR INSURED IN THE EVENT THAT, PRIOR TO THE DATE OF THE ACCIDENT, THE CERTIFICATE HOLDER HAS ENTERED INTO A WRITTEN CONTRACT WITH OUR INSURED THAT REQUIRES THAT SUCH RIGHT OF SUBROGATION BE WAIVED.

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

NEW YORK STATE INSURANCE FUND

DIRECTOR,INSURANCE FUND UNDERWRITING

VALIDATION NUMBER: 910033517

U-26.3

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF INSURANCE COVERAGE
DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

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

1a. Legal Name & Address of Insured (use street address only)
PEN ENTERPRISES INC

521 CONEY ISLAND AVE.
BROOKLYN, NY 11218

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)*

1b. Business Telephone Number of Insured
718-940-8920

1c. Federal Employer Identification Number of Insured or Social Security Number
113322341

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)
DDC - Department of Design and Construction

30-30 Thomson Avenue
Long Island City, NY 11101

3a. Name of Insurance Carrier
ShelterPoint Life Insurance Company

3b. Policy Number of Entity Listed in Box "1a"
DBL102169

3c. Policy effective period
06/18/2020 to 06/17/2022

4. Policy provides the following benefits:
- [x] A. Both disability and paid family leave benefits.
- [ ] B. Disability benefits only.
- [ ] C. Paid family leave benefits only.

5. Policy covers:
- [x] A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.
- [ ] B. Only the following class or classes of 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 and/or Paid Family Leave Benefits insurance coverage as described above.

Date Signed 3/19/2021 By _____
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number 516-829-8100 Name and Title Richard White, Chief Executive Officer

IMPORTANT: If Boxes 4A and 5A are 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, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by the NYS Workers' Compensation Board (Only if Box 4C or 5B 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 and Paid Family Leave Benefits Law with respect to all of his/her employees.

Date Signed _____ By _____
(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number _____ Name and Title _____

Please Note: *Only insurance carriers licensed to write NYS disability and paid family leave 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 (10-17)

DB-120.1 (10-17)

ACORD®

EVIDENCE OF PROPERTY INSURANCE

DATE (MM/DD/YYYY): 5/13/2021

THIS EVIDENCE OF PROPERTY INSURANCE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE ADDITIONAL INTEREST NAMED BELOW. THIS EVIDENCE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS EVIDENCE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE ADDITIONAL INTEREST.

AGENCY	PHONE (A/C, No, Ext): (631) 465-4000
AssuredPartners Northeast, LLC. 100 Baylis Road Suite 300 Melville NY 11747	FAX (A/C, No):
E-MAIL ADDRESS: Frank.Strcich@assuredpartne	
CODE:	SUB CODE:
AGENCY CUSTOMER ID #: 00195573	

COMPANY
Harleysville Worcester Insurance Co. 120 Front St. Suite 500 Worcester MA 01608-1408

INSURED
Pen Enterprises Inc. 521 Coney Island Ave. Brooklyn NY 11218

LOAN NUMBER	POLICY NUMBER
	CIM0000002910AJ

EFFECTIVE DATE	EXPIRATION DATE	CONTINUED UNTIL TERMINATED IF CHECKED
3/1/2021	3/1/2022	☐

THIS REPLACES PRIOR EVIDENCE DATED:

PROPERTY INFORMATION

LOCATION/DESCRIPTION

Blanket Reporting Form

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 EVIDENCE OF PROPERTY INSURANCE 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.

COVERAGE INFORMATION

COVERAGE / PERILS / FORMS	AMOUNT OF INSURANCE	DEDUCTIBLE
Blanket Installation Any Job Site	1,440,300	
Blanket Special form		2,500

REMARKS (Including Special Conditions)

Ref: FMS ID: PV791-TNC; E-PIN: 85020B0075001; DDC PIN: 8502020PV0004C; THEATER FOR THE NEW CITY- HVAC REPLACEMENT-BOROUGH OF MANHATTAN 155 1ST AVE NY NY 10003;

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.

ADDITIONAL INTEREST

NAME AND ADDRESS

NYC Department of Design
and Construction
30-30 Thomson Avenue, 1st Flr
Long Island City, NY 11101

	MORTGAGEE		ADDITIONAL INSURED
X	LOSS PAYEE		

LOAN #

AUTHORIZED REPRESENTATIVE

Philip Colletta/AERICK

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CITY OF NEW YORK

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.

AssuredPartners Northeast, LLC

[Name of broker or agent (typewritten)]

100 Baylis Road, Suite 300, Melville, NY 11747

[Address of broker or agent (typewritten)]

Debbie.Saracino@assuredpartners.com

[Email address of broker or agent (typewritten)]

631-465-4000/631-465-4005

[Phone number/Fax number of broker or agent (typewritten)]

Debbie Saracino

[Signature of authorized official, broker, or agent]

Debbie Saracino, V.P. / Chief Operating Officer

[Name and title of authorized official, broker, or agent (typewritten)]

State of ..New York.....)
) ss.:
County of ..Suffolk.....)

Sworn to before me this 13th day of May 2021

Deborah A. Savino

NOTARY PUBLIC FOR THE STATE OF NY

DEBORAH A. SAVINO
Notary Public, State of New York
No. 4821424
Qualified in Suffolk County
Commission Expires Sept. 30, 2022

(NO TEXT ON THIS PAGE)

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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 paid at the apprentice rates in this schedule. Apprentices who are not so registered must be paid as journey persons in accordance with the trade classification of the work they 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.

ADDENDUM

List of Amended Classifications

1. BOILERMAKER
2. BRICKLAYER
3. CARPENTER - HIGH RISE
4. CEMENT MASON
5. ELECTRICIAN
6. ENGINEER - OPERATING
7. HEAT & FROST INSULATOR
8. HOUSE WRECKER
9. IRON WORKER - ORNAMENTAL
10. IRON WORKER - STRUCTURAL
11. MASON TENDER
12. PLASTERER - TENDER
13. PLUMBER
14. POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
15. SHEET METAL WORKER
16. SIGN ERECTOR
17. STEAMFITTER - REFRIGERATION & AIR CONDITIONER

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

Boilermaker (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $32.44

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $33.12

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.32

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $35.05

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $36.21

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $37.01

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.07

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.92

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $39.97

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $40.87

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $41.86

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $42.82

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $43.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $44.74

(Local #5)

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

Bricklayer (First 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $21.55

(Bricklayer District Council)

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

Carpenter (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $19.20
Supplemental Benefit Rate Per Hour For Building Apprentice: $15.95

Wage Rate Per Hour For Heavy Apprentice: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $22.20
Supplemental Benefit Rate Per Hour For Building Apprentice: $17.45

Wage Rate Per Hour For Heavy Apprentice: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $26.45
Supplemental Benefit Rate Per Hour For Building Apprentice: $21.05

Wage Rate Per Hour For Heavy Apprentice: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

Carpenter (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour For Building Apprentice: $34.33
Supplemental Benefit Rate Per Hour For Building Apprentice: $23.05

Wage Rate Per Hour For Heavy Apprentice: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $34.49

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Ratio of Apprentice to Journeyperson: 1 to 1, 2 to 5)

Carpenter - High Rise (First Year)

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $17.52
Supplemental Benefit Rate per Hour: $16.30

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $18.27
Supplemental Benefit Rate per Hour: $16.55

Carpenter - High Rise (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.95
Supplemental Benefit Rate per Hour: $16.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.70
Supplemental Benefit Rate per Hour: $16.68

Carpenter - High Rise (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $30.53
Supplemental Benefit Rate per Hour: $16.56

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $31.28
Supplemental Benefit Rate per Hour: $16.81

Carpenter - High Rise (Fourth Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.15
Supplemental Benefit Rate per Hour: $16.71

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $38.90
Supplemental Benefit Rate per Hour: $16.96

(Carpenters District Council)

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

Cement Mason (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $19.57
Supplemental Benefit Rate per Hour: $15.61

Cement Mason (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.40
Supplemental Benefit Rate per Hour: $15.91

Cement Mason (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.68
Supplemental Benefit Rate per Hour: $16.02

(Local #780)

CEMENT AND CONCRETE WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Cement & Concrete Worker (First 1333 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 53% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.29

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 69% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $19.22

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.30

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.49

(Carpenters District Council)

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

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $16.50
Supplemental Benefit Rate per Hour: $14.54
Overtime Supplemental Rate Per Hour: $15.63

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $17.25
Supplemental Benefit Rate per Hour: $14.93
Overtime Supplemental Rate Per Hour: $16.07

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021

Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $14.80
Overtime Supplemental Rate Per Hour: $15.93

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $17.75
Supplemental Benefit Rate per Hour: $15.19
Overtime Supplemental Rate Per Hour: $16.36

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $18.00
Supplemental Benefit Rate per Hour: $15.31
Overtime Supplemental Rate Per Hour: $16.51

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $18.75
Supplemental Benefit Rate per Hour: $15.70
Overtime Supplemental Rate Per Hour: $16.95

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $19.00
Supplemental Benefit Rate per Hour: $15.83
Overtime Supplemental Rate Per Hour: $17.09

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $19.75
Supplemental Benefit Rate per Hour: $16.22
Overtime Supplemental Rate Per Hour: $17.53

Electrician (Third Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $20.00
Supplemental Benefit Rate per Hour: $16.35
Overtime Supplemental Rate Per Hour: $17.68

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $20.75
Supplemental Benefit Rate per Hour: $16.74
Overtime Supplemental Rate Per Hour: $18.11

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $21.00
Supplemental Benefit Rate per Hour: $16.87

Overtime Supplemental Rate Per Hour: $18.26

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $21.75
Supplemental Benefit Rate per Hour: $17.26
Overtime Supplemental Rate Per Hour: $18.70

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $22.00
Supplemental Benefit Rate per Hour: $17.38
Overtime Supplemental Rate Per Hour: $18.84

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $22.75
Supplemental Benefit Rate per Hour: $17.77
Overtime Supplemental Rate Per Hour: $19.28

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2020 - 4/14/2021
Wage Rate per Hour: $24.00
Supplemental Benefit Rate per Hour: $18.42
Overtime Supplemental Rate Per Hour: $20.01

Effective Period: 4/15/2021 - 6/30/2021
Wage Rate per Hour: $24.75
Supplemental Benefit Rate per Hour: $18.81
Overtime Supplemental Rate Per Hour: $20.45

Electrician (Fifth Term: 0-12 Months)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $26.00
Supplemental Benefit Rate per Hour: $22.06
Overtime Supplemental Rate Per Hour: $23.70

Electrician (Fifth Term: 13-18 Months)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $24.45
Overtime Supplemental Rate Per Hour: $26.38

Overtime Description
Overtime Wage paid at time and one half the regular rate

(Local #3)

ELEVATOR CONSTRUCTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.14

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.76

Elevator (Constructor) - Second Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.67

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $33.31

Elevator (Constructor) - Third Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.74

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $34.42

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.80

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $35.52

(Local #1)

ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.09

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.71

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.62

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.26

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.67

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.35

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2020 - 3/16/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.73

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $35.45

(Local #1)

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

Engineer - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $25.38
Supplemental Benefit Rate per Hour: $26.69

Engineer - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.72
Supplemental Benefit Rate per Hour: $26.69

Engineer - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.89
Supplemental Benefit Rate per Hour: $26.69

Engineer - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $38.06
Supplemental Benefit Rate per Hour: $26.69

(Local #15)

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

Operating Engineer - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour 40% of Journeyperson's Rate

Supplemental Benefit Per Hour: $23.45

Operating Engineer - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's Rate
Supplemental Benefit Per Hour: $23.45

Operating Engineer - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $23.45

(Local #14)

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

Floor Coverer (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $24.20
Supplemental Benefit Rate per Hour: $15.95

Floor Coverer (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.20
Supplemental Benefit Rate per Hour: $17.45

Floor Coverer (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.45
Supplemental Benefit Rate per Hour: $21.05

Floor Coverer (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $39.33
Supplemental Benefit Rate per Hour: $23.05

(Carpenters District Council)

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

Glazier (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Glazier (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Glazier (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Glazier (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3)

Handler (First 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 78% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Second 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Third 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Fourth 1000 Hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 89% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

(Local #78)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 35% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2020 - 1/10/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Effective Period: 1/11/2021 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

(Local #12)

HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

House Wrecker - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Third Year

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

House Wrecker - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Ten Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $40.20

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $41.44

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $42.68

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate

Supplemental Rate Per Hour: $45.17

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $47.65

Iron Worker (Ornamental) - First Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $21.13
Supplemental Benefit Rate per Hour: $17.61

Iron Worker (Ornamental) - Second Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $24.77
Supplemental Benefit Rate per Hour: $18.86

Iron Worker (Ornamental) - Third Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $28.40
Supplemental Benefit Rate per Hour: $20.12

Iron Worker (Ornamental) - Fourth Year

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $32.06
Supplemental Benefit Rate per Hour: $21.38

(Local #580)

IRON WORKER - STRUCTURAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $27.45
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $27.83
Supplemental Benefit Rate per Hour: $56.37

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $28.05
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $28.43
Supplemental Benefit Rate per Hour: $56.37

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $28.66
Supplemental Benefit Rate per Hour: $55.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.04
Supplemental Benefit Rate per Hour: $56.37

(Local #40 and #361)

LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)
(Ratio Apprentice to Journeyperson: 1 to 1, 1 to 3)

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: $46.63

(Local #731)

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

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Cutters & Setters - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Seventh 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Cutters & Setters - Eighth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Ninth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Cutters & Setters - Tenth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

Polishers & Finishers - First 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Polishers & Finishers - Second 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

Polishers & Finishers - Third 900 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

Mason Tender - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Local #79)

METALLIC LATHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metallic Lather (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.55
Supplemental Benefit Rate per Hour: $17.87

Metallic Lather (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.38
Supplemental Benefit Rate per Hour: $20.66

Metallic Lather (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.68
Supplemental Benefit Rate per Hour: $21.32

Metallic Lather (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $21.82

(Local #46)

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

Millwright (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.99
Supplemental Benefit Rate per Hour: $34.94

Millwright (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $35.44
Supplemental Benefit Rate per Hour: $38.64

Millwright (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.89
Supplemental Benefit Rate per Hour: $42.99

Millwright (Fourth Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $51.79
Supplemental Benefit Rate per Hour: $49.75

(Local #740)

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

Painter - Brush & Roller - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.20
Supplemental Benefit Rate per Hour: $15.93

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $20.49

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $25.80
Supplemental Benefit Rate per Hour: $24.11

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.40
Supplemental Benefit Rate per Hour: $30.93

(District Council of Painters)

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

Metal Polisher (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $16.00
Supplemental Benefit Rate per Hour: $6.66

Metal Polisher (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $6.66

Metal Polisher (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $18.00
Supplemental Benefit Rate per Hour: $6.66

(Local 8A-28)

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

Painters - Structural Steel (First Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #806)

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

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.36
Supplemental Benefit Rate per Hour: $22.50

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.00
Supplemental Benefit Rate per Hour: $22.50

(Local #1010)

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

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $13.88

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $14.36

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $16.44

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $17.53

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $19.72

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $20.81

(Local #530)

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

Plasterer Tender - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.20
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $22.15
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.65
Supplemental Benefit Rate per Hour: $10.07

Plasterer Tender - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $9.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.15
Supplemental Benefit Rate per Hour: $10.07

(Local #79)

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

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $16.28
Supplemental Benefit Rate per Hour: $5.43

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate per Hour: **$16.78**
Supplemental Benefit Rate per Hour: **$5.43**

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$19.28**
Supplemental Benefit Rate per Hour: **$6.43**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$19.78**
Supplemental Benefit Rate per Hour: **$6.43**

Plumber - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$27.91**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$28.16**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$30.01**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$30.26**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$32.86**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: **$33.11**
Supplemental Benefit Rate per Hour: **$20.38**

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: **$34.26**
Supplemental Benefit Rate per Hour: **$20.13**

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $34.51
Supplemental Benefit Rate per Hour: $20.38

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $46.33
Supplemental Benefit Rate per Hour: $20.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $46.58
Supplemental Benefit Rate per Hour: $20.38

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - First Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $27.14
Supplemental Benefit Rate per Hour: $14.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $27.90
Supplemental Benefit Rate per Hour: $14.70

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Second Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $19.24

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $31.41
Supplemental Benefit Rate per Hour: $19.67

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Third Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $36.10
Supplemental Benefit Rate per Hour: $21.99

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.24
Supplemental Benefit Rate per Hour: $22.42

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Fourth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.46
Supplemental Benefit Rate per Hour: $22.99

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.83
Supplemental Benefit Rate per Hour: $23.42

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $3.51

Roofer - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $17.54

Roofer - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.99

Roofer - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $26.18

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Sheet Metal Worker (0-6 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.51

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.76

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $19.11

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $19.55

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $26.09

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $26.65

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.81

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.50

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.81

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.50

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $37.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.78

Sheet Metal Worker (49-54 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $37.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.78

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $42.65

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $43.65

(Local #28)

SIGN ERECTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $16.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $16.51

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $18.29

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $18.74

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $20.47

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $20.96

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $22.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $23.21

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $30.68

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $31.44

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $33.38

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $34.20

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $36.84

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $37.76

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $39.62

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $40.62

Sign Erector - Fifth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $42.38

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $43.44

Sign Erector - Sixth Year

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $45.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $46.27

(Local #137)

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

Steamfitter - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STEAMFITTER - REFRIGERATION & AIR CONDITIONER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Refrigeration & Air Conditioner (First Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $20.63
Supplemental Benefit Rate per Hour: $12.13

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $20.75
Supplemental Benefit Rate per Hour: $12.99

Refrigeration & Air Conditioner (Second Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $24.89
Supplemental Benefit Rate per Hour: $13.25

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $25.04
Supplemental Benefit Rate per Hour: $14.23

Refrigeration & Air Conditioner (Third Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $14.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.17
Supplemental Benefit Rate per Hour: $15.53

Refrigeration & Air Conditioner (Fourth Year)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $35.01
Supplemental Benefit Rate per Hour: $16.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $35.22
Supplemental Benefit Rate per Hour: $17.29

(Local #638-B)

STONE MASON - SETTER
(Ratio Apprentice of Journeyperson: 1 to 1, 1 to 2)

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

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

Drywall Taper - First Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

TILE LAYER - SETTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2020 - 6/30/2021
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: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Second Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Third Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

Timberperson - Fourth Year

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $34.22

(Local #1536)

LABOR LAW ARTICLE 8 - NYC PUBLIC WORKS

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 New York Labor Law Article 8 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 projects. Prevailing rates are required to be annexed to and form part of the public work contract pursuant to Labor Law section 220 (3).

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 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 work contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public work contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public work 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 work contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-4443. All callers must have the agency name and contract registration number available when calling with questions on public work 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 651, New York, N.Y. 10007; Fax (212) 669-4002.

Pursuant to Labor Law § 220 (3-a) (a), the appropriate schedule of prevailing wages and benefits must be posted in a prominent and accessible place at all public work sites along with the Construction Poster provided on our web site at comptroller.nyc.gov/wages. In addition, covered employees must be given the appropriate schedule of prevailing wages and benefits along with the Worker Notice provided on our web site at the time the public work project begins, and with the first paycheck to each such employee after July first of each year.

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site comptroller.nyc.gov/wages. 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 comptroller.nyc.gov/wages.

Prevailing rates and ratios for apprentices are published in the Construction Apprentice Prevailing Wage Schedule. 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 paid at the apprentice rates. Apprentices who are not so registered must be paid as journey persons.

New York City public work projects 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:

https://www1.nyc.gov/site/mocs/legal-forms/project-labor-agreements.page

All the provisions of Labor Law Article 8 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller in accordance with the trade classifications in this schedule; 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 fringe 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 fringe benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.**

Although prevailing wage laws do not require employers to provide bona fide fringe benefits (as opposed to wage supplements) to their employees, other laws may. For example, the Employee Retirement Income Security Act, 29 U.S.C. § 1001 et seq., the Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 et seq., and the New York City Paid Sick Leave Law, N.Y.C. Admin. Code § 20-911 et seq., require certain employers to provide certain benefits to their employees. Labor agreements to which employers are a party may also require certain benefits. The Comptroller's Office does not enforce these laws or agreements.

Employers must provide prevailing supplemental benefits at the straight time rate for each hour worked unless otherwise noted in the classification.

Paid Holidays, Vacation and Sick Leave when listed must be paid or provided in addition to the prevailing hourly supplemental benefit rate.

For more information, please refer to the Comptroller's Prevailing Wage Law Regulations in Title 44 of the Rules of the City of New York, Chapter 2, available at comptroller.nyc.gov/wages.

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

ADDENDUM

List of Amended Classifications

1. BOILERMAKER
2. BRICKLAYER
3. CARPENTER - HIGH RISE CONCRETE FORMS
4. CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST
5. CEMENT MASON
6. CORE DRILLER
7. DERRICKPERSON AND RIGGER
8. DRIVER: TRUCK (TEAMSTER)
9. ELECTRICIAN
10. ELECTRICIAN-STREET LIGHTING WORKER
11. ENGINEER - OPERATING
12. GLAZIER
13. HOUSE WRECKER
14. IRON WORKER - ORNAMENTAL
15. IRON WORKER - STRUCTURAL
16. MARBLE MECHANIC
17. MASON TENDER
18. MASON TENDER (INTERIOR DEMOLITION WORKER)
19. MOSAIC MECHANIC
20. PLASTERER
21. PLASTERER - TENDER
22. PLUMBER
23. PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)
24. POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
25. SHEET METAL WORKER
26. SHEET METAL WORKER - SPECIALTY
27. SIGN ERECTOR
28. STEAMFITTER
29. STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
30. TAPER
31. TILE FINISHER
32. TILE LAYER - SETTER

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ASBESTOS HANDLER
SEE HAZARDOUS MATERIAL HANDLER

BLASTER

Blaster

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $56.21
Supplemental Benefit Rate per Hour: $46.63

Blaster- Hydraulic Trac Drill

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.35
Supplemental Benefit Rate per Hour: $46.63

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $49.52
Supplemental Benefit Rate per Hour: $46.63

Blaster - Journeyperson

(Laborer, Chipper/Jackhammer including Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers and Hydro (Water) Demolition, Powder Carrier, Hydraulic Chuck Tender, Chuck Tender and Nipper)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $46.63

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $46.63

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
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)

BOILERMAKER

Boilermaker

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $61.24
Supplemental Benefit Rate per Hour: $45.62
Supplemental Note: For time and one half overtime - $67.98 For double overtime - $90.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $63.38
Supplemental Benefit Rate per Hour: $46.67
Supplemental Note: For time and one half overtime - $69.56 For double overtime - $92.44

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

On jobs requiring two (2) or three (3) shifts, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work eight (8) hours and receive eight hours at the regular straight time hourly rate plus two dollars ($2.00) per hour. The third shift shall work eight (8) hours and receive eight hours at the regular straight time hourly rate plus two dollars and twenty-five cents ($2.25) per hour.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.32
Supplemental Benefit Rate per Hour: $33.11

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.49
Supplemental Benefit Rate per Hour: $34.30

Overtime Description

Time and one half the regular rate after a 7 hour day. If working on a job that is predominately Pointer, Cleaner, Caulker work, then Time and one half the regular rate after an 8 hour day.

Overtime

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

Overtime Holidays

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

Paid Holidays

None

Shift Rates

The second shift wage rate shall be a 15% wage premium with no premium for supplemental benefits. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, eight hours will be paid at straight time rate for seven hours of work.

(Bricklayer District Council)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.00
Supplemental Benefit Rate per Hour: $46.88

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
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. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - HEAVY CONSTRUCTION WORK
(Construction of Engineered Structures and Building Foundations including all form work)

Heavy Construction Work

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.93
Supplemental Benefit Rate per Hour: $52.49

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

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

Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate. When two (2) or more shifts of Carpenters are employed, single time will be paid for each shift.

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Excludes Engineered Structures and Building Foundations)

Carpenter High Rise A

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $43.44

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $44.38

Carpenter High Rise B

Carpenter High Rise B worker is excluded from high risk operations such as erection decking, perimeter debris netting, leading edge work, self-climbing form systems, and the installation of cocoon systems unless directly supervised by a Carpenter High Rise A worker.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $16.75

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $17.75

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

Time and one half 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

None

Shift Rates

The second shift wage rate shall be 113% of the straight time hourly wage rate. However, any shift beginning after 5:00 P.M. shall be paid at time and one half the regular hourly rate. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $51.50
Supplemental Benefit Rate per Hour: $46.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.50
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
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. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - WOOD WATER STORAGE TANK

Tank Mechanic

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $35.21
Supplemental Benefit Rate per Hour: $21.03

Tank Helper

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.97
Supplemental Benefit Rate per Hour: $21.03

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
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Day after Thanksgiving
1/2 day on Christmas Eve if work is performed in the A.M.
Christmas Day
1/2 day on New Year's Eve if work is performed in the A.M.

Vacation

Employed for one (1) year.....one (1) week vacation (40 hours)
Employed for three (3) years.....two (2) weeks vacation (80 hours)
Employed for more than twenty (20) years.....three (3) weeks vacation (120 hours)

SICK LEAVE:
Two (2) sick days after being employed for twenty (20) years.

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.28
Supplemental Benefit Rate per Hour: $29.20
Supplemental Note: $32.70 on Saturdays; $36.20 on Sundays & Holidays

Cement & Concrete Worker - (Hired after 2/6/2016)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $21.20
Supplemental Note: $22.70 on Saturdays; $24.20 on Sundays & Holidays

Overtime Description

Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

Overtime

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

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

Paid Holidays
1/2 day before Christmas Day
1/2 day before New Year's Day

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

(Cement Concrete Workers District Council)

CEMENT MASON

Cement Mason

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.97
Supplemental Benefit Rate per Hour: $40.56
Supplemental Note: Supplemental benefit time and one half rate: $71.19; Double time rate: double the base supplemental benefit rate.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.77
Supplemental Benefit Rate per Hour: $41.01
Supplemental Note: Supplemental benefit time and one half rate: $71.97; Double time rate: double the base supplemental benefit rate.

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. Four Days a week at Ten (10) hours straight time is allowed.

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 off shift 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.

(Local #780) (BCA)

CORE DRILLER

Core Driller

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $41.19
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $41.74
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $32.62
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $32.92
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $29.36

Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $29.63
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.10
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.34
Supplemental Benefit Rate per Hour: $29.40

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $22.83
Supplemental Benefit Rate per Hour: $27.95

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $23.04
Supplemental Benefit Rate per Hour: $29.40

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
When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents ($0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $53.13
Supplemental Benefit Rate per Hour: $54.60
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $56.02 - For work performed in Staten Island.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $53.99
Supplemental Benefit Rate per Hour: $55.10
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $56.52 - For work performed in Staten Island.

Derrick Person & Rigger - Site Work

Assists the Stone Mason-Setter in the setting of stone and paving stone.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.02
Supplemental Benefit Rate per Hour: $43.12

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.86
Supplemental Benefit Rate per Hour: $43.37

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.80
Supplemental Benefit Rate per Hour: $52.49

Diver Tender (Marine)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.34
Supplemental Benefit Rate per Hour: $52.49

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.93
Supplemental Benefit Rate per Hour: $52.49

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

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

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Dump Truck

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $41.18
Supplemental Benefit Rate per Hour: $49.65
Supplemental Note: Over 40 hours worked: at time and one half rate - $22.08; at double time rate - $29.44

Driver - Tractor Trailer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.06
Supplemental Benefit Rate per Hour: $50.56
Supplemental Note: Over 40 hours worked: at time and one half rate - $21.61; at double time rate - $28.82

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.62
Supplemental Benefit Rate per Hour: $50.56
Supplemental Note: Over 40 hours worked: at time and one half rate - $21.61; at double time rate - $28.82

Overtime Description
For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay. For Thanksgiving week, the prorated share shall be 5 1/3 hours of holiday pay for each day worked in Thanksgiving week.

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

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
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 shift work commencing between 6:00 P.M. and 4:30 A.M. shall work eight and one half (8 1/2) 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $39.00
Supplemental Benefit Rate per Hour: $45.52
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $40.37
Supplemental Benefit Rate per Hour: $45.84
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Overtime Description

For Paid Holidays: Employees who do not work on a contractual holiday shall be compensated two (2) hours extra pay in straight time wages and benefits for every day on which the Employee does not pass up a day's work during the calendar week (Sunday through Saturday) of the holiday, up to a maximum of ten (10) hours in wages and eight (8) hours in benefit contributions 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.

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 installation of low voltage cabling carrying data, video and/or voice on building construction/alteration/renovation projects.)

Electrician "A" (Regular Day / Day Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $58.46

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $54.86
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Regular Day Overtime after 7 hrs / Day Shift Overtime after 8 hrs)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $87.00
Supplemental Benefit Rate per Hour: $62.12

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $87.00
Supplemental Benefit Rate per Hour: $56.73
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Swing Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $68.05
Supplemental Benefit Rate per Hour: $66.61

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $68.05
Supplemental Benefit Rate per Hour: $62.39

*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $102.08
Supplemental Benefit Rate per Hour: $70.91

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $102.08
Supplemental Benefit Rate per Hour: $64.58
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $76.23
Supplemental Benefit Rate per Hour: $73.47

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $76.23
Supplemental Benefit Rate per Hour: $68.74
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $114.35
Supplemental Benefit Rate per Hour: $78.28

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $114.35
Supplemental Benefit Rate per Hour: $71.19
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

* Supplemental Benefit Rate per Hour Note

In addition to the Supplemental Benefit Rates per Hour listed above, the employer must provide an additional 6.2% of taxable gross pay earned on covered work only. This additional Supplemental Benefit Rate will terminate when the employee has contributed the maximum annual Social Security tax required by law, on all work performed.

Overtime

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

Overtime Holidays

Time and one half the regular rate for work on a holiday.
New Year's Day
Martin Luther King Jr. Day

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

Paid Holidays

None

Shift Rates

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 $25.46.

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $24.45
First and Second Year "M" Wage Rate Per Hour: $26.00
First and Second Year "M" Supplemental Rate: $22.06

Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.75
Supplemental Benefit Rate per Hour: $26.38
First and Second Year "M" Wage Rate Per Hour: $39.00
First and Second Year "M" Supplemental Rate: $23.70

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $33.90
Supplemental Benefit Rate per Hour: $18.43
Supplemental Note: $16.80 only after 8 hours worked in a day

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

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half 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 8:30 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: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $60.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $58.00
Supplemental Benefit Rate per Hour: $56.83
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $43.16
Supplemental Benefit Rate per Hour: $44.83

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.16
Supplemental Benefit Rate per Hour: $42.15

*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2020 – 1/24/2021
Wage Rate per Hour: $37.11
Supplemental Benefit Rate per Hour: $40.34

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.11
Supplemental Benefit Rate per Hour: $38.04
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

* Supplemental Benefit Rate per Hour Note

In addition to the Supplemental Benefit Rates per Hour listed above, the employer must provide an additional 6.2% of taxable gross pay earned on covered work only. This additional Supplemental Benefit Rate will terminate when the employee has contributed the maximum annual Social Security tax required by law, on all work performed.

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: 7/1/2020 - 3/16/2021
Wage Rate per Hour: $69.56
Supplemental Benefit Rate per Hour: $37.47

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate per Hour: $72.29
Supplemental Benefit Rate per Hour: $38.29

Overtime Description
For New Construction: work performed after an 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: 7/1/2020 - 3/16/2021
Wage Rate per Hour: $54.56
Supplemental Benefit Rate per Hour: $37.37

Effective Period: 3/17/2021 - 6/30/2021
Wage Rate per Hour: $56.77
Supplemental Benefit Rate per Hour: $38.19

Overtime Description
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

Cherrypickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $72.93
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $116.69

Engineer - Heavy Construction Operating Engineer II

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls: Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.74
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $113.18

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $67.06
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $107.30

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $70.40
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $112.64

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $92.76
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $148.42

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.12
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $73.79

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.34
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $75.74

Engineer - Heavy Construction Service Engineer

Gradalls: Concrete Pumps: Power Houses: Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.37
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $101.39

Engineer - Heavy Construction Service Mechanic

Shovels: Cranes: Draglines: Backhoes: Keystones: Pavers: Trenching Machines: Gunite Machines: Compressors (three (3) or more in Battery): Crawler Cranes- having a straight lattice boom with no attachment or luffing boom, no jib and no auxiliary attachment.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.54
Supplemental Benefit Rate per Hour: $40.60
Supplemental Note: $73.80 on overtime
Off-Shift Wage Rate: $69.66

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $65.31
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $104.50

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $61.05
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $97.68

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.18
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Off-Shift Wage Rate: $73.89

Overtime Description

On jobs of more than one shift, if the next shift employee fails to report for work through any cause over which the employer has no control, the employee on duty who works the next shift continues to work at the single time rate.

Overtime

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

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

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

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Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.45
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $48.26
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $59.33
Supplemental Benefit Rate per Hour: $39.74

Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers II

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.78
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Overtime Description
On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
When two (2) or more shifts are employed, single time will be paid for each shift.

(Local #15)

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.41
Supplemental Benefit Rate per Hour: $22.75

Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $33.13
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.54
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $65.44
Supplemental Benefit Rate per Hour: $35.12

Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $50.83
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $32.84
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $76.22

Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.85 per hour (time & one half), $68.15 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.96
Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.58 per hour (time & one half), $68.15 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.94
Supplemental Benefit Rate per Hour: $37.55
Supplemental Note: Overtime benefit rate - $52.85 per hour (time & one half), $68.15 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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $69.15
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $53.88
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.04
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $84.47

Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $135.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $83.41
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $133.46

Operating Engineer - Road & Heavy Construction II

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.39
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $139.82

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.33
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $138.13

Operating Engineer - Road & Heavy Construction III

Mine Hoists (Cranes, etc. when used as Mine Hoists)

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $90.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $144.24

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $89.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $142.54

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $88.02
Supplemental Benefit Rate per Hour: $32.95

Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $140.83

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.96
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $139.14

Operating Engineer - Road & Heavy Construction V

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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $86.31
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $138.10

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $85.25
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $136.40

Operating Engineer - Road & Heavy Construction VI

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $131.33

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.02
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $129.63

Operating Engineer - Road & Heavy Construction VII

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $66.62
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Off-Shift Wage Rate: $106.59

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $65.56
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $104.90

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $65.21

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.02
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $64.15

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $78.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $125.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $77.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $123.34

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $71.97
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $115.15

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $70.91
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $113.46

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.26
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $90.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.20
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $88.32

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.94
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $132.70

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.88
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $131.01

Operating Engineer - Road & Heavy Construction XIII

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $80.38
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $128.61

Effective Period: 1/25/2021 - 6/30/2021

Wage Rate per Hour: $79.32
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $126.91

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $76.91
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $123.06

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $75.85
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $121.36

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.41
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $83.86

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.35
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $82.16

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $73.53
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $117.65

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $72.47
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $115.95

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $74.07
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $118.51

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $73.01
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $116.82

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $105.59
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $168.94

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $104.53
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $167.25

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $82.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $131.33

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.02

Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $129.63

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $80.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $128.02

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $78.95
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $126.32

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $67.92
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $108.67

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $66.86
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $106.98

Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.64
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.58
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.80
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.74
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $70.36
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $69.30
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $90.61
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $144.98

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $89.55
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $143.28

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $87.12

Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $139.39

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.06
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $137.70

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.37
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $83.79

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.31
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $82.10

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.93
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Off-Shift Wage Rate: $79.89

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.87
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
Off-Shift Wage Rate: $78.19

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $69.51
Supplemental Benefit Rate per Hour: $32.95

Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $68.45
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.21
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.15
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $79.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $81.39
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work IV

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $83.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $86.19
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $77.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $76.09
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $76.35
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $75.29
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
For New House Car projects Wage Rate per Hour $48.70

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $59.78
Supplemental Benefit Rate per Hour: $33.95
Supplemental Note: $61.95 overtime hours
For New House Car projects Wage Rate per Hour $47.64

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
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
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
When two (2) or more shifts are employed, single time will be paid for each shift.
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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.00
Supplemental Benefit Rate per Hour: $46.88

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
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Day before Christmas
Christmas Day
Day before New Year's Day

Shift Rates

Two shifts may be utilized with the first shift working 8 a.m. to the end of the shift at straight time rate of pay. The wage rate for the second shift consisting of 7 hours shall be paid at 114.29% of straight time wage rate. The wage rate for the second shift consisting of 8 hours shall be paid 112.5% of the straight time wage rate. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

GLAZIER
(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $46.55
Supplemental Benefit Rate per Hour: $45.34
Supplemental Note: Supplemental Benefit Overtime Rate: $68.03

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $46.55
Supplemental Benefit Rate per Hour: $46.54
Supplemental Note: Supplemental Benefit Overtime Rate: $69.83

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

Shift Rates
Shifts shall be any 8 consecutive hours after the normal working day for which the Glazier shall receive 9 hours pay for 8 hours worked.

(Local #1281)

GLAZIER - REPAIR & MAINTENANCE
(For the Installation of Glass - All repair and maintenance work on a particular building.)

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $26.02
Supplemental Benefit Rate per Hour: $23.19

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 rate for work on the following holiday(s).
Time and one half the regular hourly rate after 40 straight time 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
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Removal, abatement, encapsulation or decontamination of asbestos, lead, mold, or other toxic or hazardous waste/materials)

Handler

Effective Period: 7/1/2020 - 9/6/2020
Wage Rate per Hour: $37.50
Supplemental Benefit Rate per Hour: $16.95

Effective Period: 9/7/2020 - 6/30/2021
Wage Rate per Hour: $38.05
Supplemental Benefit Rate per Hour: $17.75

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 straight time 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)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.01
Supplemental Benefit Rate per Hour: $41.16

Overtime Description
Double time shall be paid for supplemental benefits during overtime work.
8th hour paid at time and one half.

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
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. There must be a first shift to work the second shift, and a second shift to work the third shift. Off-hour jobs in occupied buildings may be worked on weekdays with an increment of one-dollar ($1.00) per hour and eight (8) hours pay for seven (7) hours worked.

(Local #12) (BCA)

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $30.07

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.63
Supplemental Benefit Rate per Hour: $30.47

House Wrecker - Tier B

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.41
Supplemental Benefit Rate per Hour: $22.48

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.86
Supplemental Benefit Rate per Hour: $22.88

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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $45.65
Supplemental Benefit Rate per Hour: $57.62
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.90
Supplemental Benefit Rate per Hour: $58.62
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
When two or three shifts are employed on a job, Monday through Friday, the second and third shift are paid eight and one half (8 ½) hours at the straight time rate for seven (7) hours of work, and ten (10) hours at the straight time rate for eight (8) hours of work. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, eight hours will be paid at straight time rate for seven hours of work, and all overtime shall be paid at time and one-half the regular straight time rates but on Sundays and Holidays, time and one-half the regular straight time rate shall be paid for all work up to seven (7) hours and double time shall be paid for all work thereafter.

(Local #580)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $52.70
Supplemental Benefit Rate per Hour: $80.82
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $53.45
Supplemental Benefit Rate per Hour: $81.82
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

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

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
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.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.

(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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $46.63

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
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 Green Infrastructure projects, the planting of street trees and trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

Landscaper (Year 6 and above)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $32.80
Supplemental Benefit Rate per Hour: $16.55

Landscaper (Year 3 - 5)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.74
Supplemental Benefit Rate per Hour: $16.55

Landscaper (up to 3 years)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.08
Supplemental Benefit Rate per Hour: $16.55

Groundperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $29.08
Supplemental Benefit Rate per Hour: $16.55

Tree Remover / Pruner

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $38.14
Supplemental Benefit Rate per Hour: $16.55

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $27.48
Supplemental Benefit Rate per Hour: $16.55

Watering - Plant Maintainer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.12
Supplemental Benefit Rate per Hour: $16.55

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
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $55.35
Supplemental Benefit Rate per Hour: $41.26

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.89
Supplemental Benefit Rate per Hour: $41.66

Marble Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.37

Supplemental Benefit Rate per Hour: $38.71

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.72
Supplemental Benefit Rate per Hour: $38.96

Marble Polisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $41.41
Supplemental Benefit Rate per Hour: $30.93

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $42.12
Supplemental Benefit Rate per Hour: $31.31

Marble Maintenance Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $25.53
Supplemental Benefit Rate per Hour: $13.46

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.10
Supplemental Benefit Rate per Hour: $13.56

Overtime Description
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
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $39.20
Supplemental Benefit Rate per Hour: $31.24

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

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

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate. When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Local #79)

MASON TENDER (INTERIOR DEMOLITION WORKER)

Mason Tender Tier A

Tier A Interior Demolition Worker performs all burning, chopping, and other technically skilled tasks related to interior demolition work.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $36.84
Supplemental Benefit Rate per Hour: $24.90

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $37.29
Supplemental Benefit Rate per Hour: $25.25

Mason Tender Tier B

Tier B Interior Demolition Worker performs manual work and work incidental to demolition work, such as loading and carting of debris from the work site to an area where it can be loaded in to bins/trucks for removal. Also performs clean-up of the site when demolition is completed.

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $26.03
Supplemental Benefit Rate per Hour: $19.22

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $26.48
Supplemental Benefit Rate per Hour: $19.57

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

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

Paid Holidays
None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.25
Supplemental Benefit Rate per Hour: $48.15
Supplemental Note: For time and one half overtime - $59.40 For double overtime - $74.65

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.

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
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
Off-shift work outside of normal working hours shall receive straight time rate plus $12 per hour for the first seven (7) or eight (8) hours.

(Local #46)

MILLWRIGHT

Millwright

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $55.70
Supplemental Benefit Rate per Hour: $54.31

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

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Veteran's 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
Second shift receives the straight time rate of pay plus fifteen (15%) percent allowing for one half hour for a meal. 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%) percent for weekday hours.

(Local #740)

MOSAIC MECHANIC

Mosaic Mechanic - Mosaic & Terrazzo Mechanic

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.82
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.32
Supplemental Benefit Rate per Hour: $43.17

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.22
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.72
Supplemental Benefit Rate per Hour: $43.17

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $49.22
Supplemental Benefit Rate per Hour: $42.73

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.72
Supplemental Benefit Rate per Hour: $43.17

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $34.70
Supplemental Note: $40.99 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.00
Supplemental Benefit Rate per Hour: $34.70
Supplemental Note: $ 40.99 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 - LINE STRIPING (ROADWAY)

Striping - Machine Operator

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.00
Supplemental Benefit Rate per Hour: $13.37
Supplemental Note: Overtime Supplemental Benefit rate - $15.00

Lineperson (Thermoplastic)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $40.00

Supplemental Benefit Rate per Hour: $13.37
Supplemental Note: Overtime Supplemental Benefit rate - $15.00

Overtime Description

Time and one half the regular rate for all work in excess of ten (10) straight time hours per day and in excess of forty (40) straight time hours per week.

For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the regularly scheduled workday before and after the holiday.

Overtime

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
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

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.

(Local #1010)

PAINTER - METAL POLISHER

METAL POLISHER

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.08
Supplemental Benefit Rate per Hour: $9.59

METAL POLISHER - NEW CONSTRUCTION

Effective Period: 7/1/2020 - 6/30/2021

Wage Rate per Hour: **$32.03**
Supplemental Benefit Rate per Hour: **$9.59**

METAL POLISHER - SCAFFOLD OVER 34 FEET

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: **$34.58**
Supplemental Benefit Rate per Hour: **$9.59**

Overtime Description
All work performed on Saturdays shall be paid at time-in-a half. The exception being; for suspended scaffold work and work deemed as a construction project; an eight (8) hour shift lost during the week due to circumstances beyond the control of the employer, up to a maximum of eight (8) hours per week, may be worked on Saturday at the straight time rate.

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

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Four Days a week at Ten (10) hours straight a day.

Local 8A-28A

PAINTER - SIGN

Sign Painter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: **$43.13**

Supplemental Benefit Rate per Hour: $21.13

Assistant Sign Painter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $36.65
Supplemental Benefit Rate per Hour: $19.40

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

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation
At least 1 year of employment.....1 week
2 years or more of employment.....2 weeks
8 years or more of employment.....3 weeks

(Local #8A-28A)

PAINTER - STRUCTURAL STEEL

Painters on Structural Steel

Effective Period: 7/1/2020 - 9/30/2020
Wage Rate per Hour: $50.25
Supplemental Benefit Rate per Hour: $46.53

Effective Period: 10/1/2020 - 6/30/2021
Wage Rate per Hour: $51.50
Supplemental Benefit Rate per Hour: $48.28

Painter - Power Tool

Effective Period: 7/1/2020 - 9/30/2020
Wage Rate per Hour: $56.25
Supplemental Benefit Rate per Hour: $46.53
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

Effective Period: 10/1/2020 - 6/30/2021
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $48.28
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

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
Second shift is paid at regular hourly wage rates plus a ten percent (10%) differential. There must be a first shift in order to work a second shift.

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $46.00
Supplemental Benefit Rate per Hour: $36.36
Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

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

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

Paid Holidays
None

Shift Rates
Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters #9)

PAVER AND ROADBUILDER

Paver & Roadbuilder - Formsetter

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.35
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

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 for installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry/seal coating, paving stones, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.48
Supplemental Benefit Rate per Hour: $46.71

Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Production Paver & Roadbuilder - Screed Person

(Production paving is asphalt paving when using a paving machine or on a project where a paving machine is traditionally used)

Adjustment of paving machinery on production paving jobs.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.95
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $47.35
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $43.48
Supplemental Benefit Rate per Hour: $46.71
Supplemental Note: For time and one half overtime - $50.71 For double overtime - $54.71

Overtime Description
If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

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.

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).
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day

Paid Holidays

Memorial Day
Independence Day
Labor 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 at the straight time rate 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 10% over the single time rate for the screed person, rakers and shovelers directly involved only. This differential is to be paid when there is only one shift and the shift works at night. 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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $45.73
Supplemental Benefit Rate per Hour: $27.37

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $45.73
Supplemental Benefit Rate per Hour: $30.37

Overtime

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

Overtime Holidays

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

Paid Holidays
None

Shift Rates
When it is not possible to conduct work during regular working hours (between 6:30am and 4:30pm), a shift differential shall be paid at the regular hourly rate plus a twelve per cent (12%) per hour differential. Workers on shift work shall be allowed a paid one-half hour meal break.

(Local #262)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $39.20
Supplemental Benefit Rate per Hour: $31.24

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $70.35
Supplemental Benefit Rate per Hour: $37.85
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $70.85
Supplemental Benefit Rate per Hour: $38.35
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $56.36
Supplemental Benefit Rate per Hour: $30.20

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.76
Supplemental Benefit Rate per Hour: $30.60

Overtime

Double time 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

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 (MECHNICAL EQUIPMENT AND SERVICE)
(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $44.37
Supplemental Benefit Rate per Hour: $18.31

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $48.84
Supplemental Benefit Rate per Hour: $27.20

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $49.19
Supplemental Benefit Rate per Hour: $27.55

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

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

Paid Holidays
None

Shift Rates
30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER: PUMP & TANK
Oil Trades (Installation and Maintenance)

Plumber - Pump & Tank

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $68.38
Supplemental Benefit Rate per Hour: $26.33

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

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

Paid Holidays
None

Shift Rates
All work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)

Journeyperson

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $54.39
Supplemental Benefit Rate per Hour: $27.79

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $55.71

Supplemental Benefit Rate per Hour: $28.72

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 4:00 P.M.) is to be paid at time and one half the regular rate. However, the employer may establish one (1) or two (2) shifts starting at or after 4:00 P.M. to be paid at the regular hourly rate plus a 10% differential.

(Bricklayer District Council)

ROOFER

Roofer

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $44.25
Supplemental Benefit Rate per Hour: $34.81

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

Memorial Day
Independence Day
Labor 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. There must be a first shift to work the second shift, and a second shift to work the third shift. All other work outside the regular work day (an eight hour workday between the hours of 5:00 A.M. and 4:00 P.M.) is to be paid at time and one half the regular rate.

(Local #8)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.61
Supplemental Benefit Rate per Hour: $52.09
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $51.36
Supplemental Benefit Rate per Hour: $53.34
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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $40.49
Supplemental Benefit Rate per Hour: $52.09

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $41.09
Supplemental Benefit Rate per Hour: $53.34

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $18.26
Supplemental Benefit Rate per Hour: $11.63

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $18.49
Supplemental Benefit Rate per Hour: $11.94

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
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Work that can only be performed outside regular working hours (eight 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

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: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $47.66
Supplemental Benefit Rate per Hour: $25.99
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.18
Supplemental Benefit Rate per Hour: $26.87
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: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $28.50
Supplemental Benefit Rate per Hour: $3.95

Shipyard Mechanic - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $19.07
Supplemental Benefit Rate per Hour: $3.59

Shipyard Laborer - First Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $23.40
Supplemental Benefit Rate per Hour: $3.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.38
Supplemental Benefit Rate per Hour: $3.52

Shipyard Dockhand - First Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.57
Supplemental Benefit Rate per Hour: $3.68

Shipyard Dockhand - Second Class

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.28
Supplemental Benefit Rate per Hour: $3.52

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 straight time 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

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $50.79
Supplemental Benefit Rate per Hour: $56.05

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $52.29
Supplemental Benefit Rate per Hour: $57.49

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
President's Day
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

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $57.95
Supplemental Benefit Rate per Hour: $57.84
Supplemental Note: Overtime supplemental benefit rate: $114.94

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $59.05
Supplemental Benefit Rate per Hour: $58.14
Supplemental Note: Overtime supplemental benefit rate: $115.54

Steamfitter -Temporary Services

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $44.04
Supplemental Benefit Rate per Hour: $47.01

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $44.88
Supplemental Benefit Rate per Hour: $47.31

Overtime Description
Double time after a 7 hour day except for Temporary Services.

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

Paid Holidays
None

Shift Rates
May be performed outside of the regular workday except Saturday, Sunday and Holidays. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium

on supplemental benefits.

Local 638

STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
(Maintenance and Installation Service Person)

Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $42.60
Supplemental Benefit Rate per Hour: $17.96

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $42.85
Supplemental Benefit Rate per Hour: $19.46

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

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

Double time and one half the regular rate for work on the following holiday(s).
Martin Luther King Jr. Day
President's Day
Memorial Day
Columbus Day

Paid Holidays
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day

Thanksgiving Day
Christmas Day

(Local #638-B)

STONE MASON - SETTER

Stone Mason - Setter

(Assisted by Derrickperson and Rigger)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.99
Supplemental Benefit Rate per Hour: $45.58

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

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

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

Shift Rates
For all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

TAPER

Drywall Taper

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $47.82
Supplemental Benefit Rate per Hour: $27.56

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $48.47
Supplemental Benefit Rate per Hour: $27.91

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.

(Local #1974)

TELECOMMUNICATION WORKER
(Install/maintain/repair telecommunications cables carrying data, video, and/or voice except for installation on building construction/alteration/renovation projects.)

Telecommunication Worker

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $45.88
Supplemental Benefit Rate per Hour: $23.15

Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. $22.84 for Staten Island only.

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
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday

Shift Rates

For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.

Vacation

After 6 months.....one week.
After 12 months but less than 7 years.....two weeks.
After 7 or more but less than 15 years.....three weeks.
After 15 years or more but less than 25 years.....four weeks.

(C.W.A.)

TILE FINISHER

Tile Finisher

Effective Period: 7/1/2020 - 1/24/2021
Wage Rate per Hour: $43.31
Supplemental Benefit Rate per Hour: $34.43

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $34.78

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

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

Paid Holidays
None

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

(Local #7)

TILE LAYER - SETTER

Tile Layer - Setter

Effective Period: 7/1/2020 - 1/24/2021

Wage Rate per Hour: $55.86
Supplemental Benefit Rate per Hour: $39.08

Effective Period: 1/25/2021 - 6/30/2021
Wage Rate per Hour: $56.40
Supplemental Benefit Rate per Hour: $39.43

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

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

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

(Local #7)

TIMBERPERSON

Timberperson

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $51.05
Supplemental Benefit Rate per Hour: $51.94

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

Overtime Holidays

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

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $67.00
Supplemental Benefit Rate per Hour: $58.33

Tunnel Workers (Compressed Air Rates)

Includes shield driven liner plate portions or solidification portions work (8 hour shift) during excavation phase.

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $64.63
Supplemental Benefit Rate per Hour: $56.47

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.53
Supplemental Benefit Rate per Hour: $55.38

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.29
Supplemental Benefit Rate per Hour: $54.44

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

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $62.29
Supplemental Benefit Rate per Hour: $54.44

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $54.72
Supplemental Benefit Rate per Hour: $51.24

Blasters (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $63.91
Supplemental Benefit Rate per Hour: $56.01

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $61.15
Supplemental Benefit Rate per Hour: $53.66

All Others (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $56.51
Supplemental Benefit Rate per Hour: $49.67

Microtunneling (Free Air Rates)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $48.92
Supplemental Benefit Rate per Hour: $42.93

Overtime Description

For work performed during excavation and primary concrete tunnel lining phases - Double time the regular rate after an 8 hour day and Saturday, Sunday and on the following holiday(s) listed below.
For Repair-Maintenance Work on Existing Equipment and Facilities - Time and one half the regular rate after a 7 hour day, Saturday, Sunday and double time the regular rate for work on the following holiday(s) listed below.

For Small-Bore Micro Tunneling Machines - Time and one-half the regular rate shall be paid for all overtime. For work not listed above - Time and one half the regular rate after an 8 hour day and Saturday and double time the regular rate on Sunday and on the following holiday(s) listed below.

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)

UTILITY LOCATOR
(Locate & mark underground utilities for street excavation.)

Utility Locator (Year 7 and above)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $31.56
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 5 - 6)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $22.85
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 4)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $21.54
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 3)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $20.30

Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 2)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $19.13
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Year 1)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $18.04
Supplemental Benefit Rate per Hour: $1.43

Utility Locator (Up to 1 year)

Effective Period: 7/1/2020 - 6/30/2021
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $1.43
Supplemental Note: No benefits for the first 90 days of employment.

Overtime
Time and one half the regular rate for work on the following holiday(s).
Time and one half the regular hourly rate after 40 straight time hours in any work week.

Paid Holidays
New Year's Day
Memorial Day
Independence Day
Thanksgiving Day
Christmas Day

Shift Rates
10% shift differential to employees working any shift starting between noon and 5 AM.

Vacation
For up to 1 year 0 hours
For year 1 - 2 48 hours per year
For year 3 - 9 96 hours per year
For year 10 or more 144 hours per year

Sick Days:
For up to 1 year employee receives 40 hours paid sick leave.
For year 1 employee earns 2 hours of paid sick leave for every 100 overtime hours worked.
For year 2 - 9 years employee earns 4 hours of paid sick leave for every 100 overtime hours worked.
For year 10 or more employee earns 6 hours of paid sick leave for every 100 overtime hours worked.

(C.W.A.)

WELDER

TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE PERFORMING THE WORK.

Changes between the 7/1/2019 and 3/15/2020 Single Contract General Conditions

NOTE: The list below is intended as a guide.
The text of the General Conditions and the Addendum to the General Conditions govern.

Section	Change
All	- Replace the words “shall”, fix typos, clarify language.
01 10 00	- Update references to new PROJECT SCHEDULES Sections in Subsection 1.4 D. - Revise requirements for mobilization payment in Subsection 1.10 D.
01 31 00	- Update RFI Log submittal frequency
01 32 00	- Remove Construction and Composite Schedule requirements - Remove Schedule F, revise to new Schedule Submittal requirements in Subsection 2.1
01 32 16.1	- Add new Section – PROJECT SCHEDULES (METHOD A)
01 32 16.2	- Add new Section – PROJECT SCHEDULES (METHOD B)
01 32 16.3	- Add new Section – PROJECT SCHEDULES (METHOD C)
01 33 00	- Revise Shop Drawing and Sample submittal requirements
01 32 33	- Remove film photograph requirements. Update digital photograph requirements.
01 35 06	- Remove Motor Control Equipment spare parts from Subsection 3.8
01 42 00	- Update references and acronyms in Subsection 1.3
01 42 00	- Clarify ICC A117.1 version in Subsection 1.4 A
01 50 00	- Changes to DDC Field Office Requirements in Subsections 3.8 B and 3.8 D
01 73 00	- Add new Subsection 3.24 to provide default allowance payment requirements
01 78 39	- Fix typo in Subsection 2.6 B. - Add new Subsections for Construction Record Photographs, Final Site Survey, LEED Materials and Matrix
Addendum	- Add 01 32 16.10, 01 32 16.20, 01 32 16.20 to table in Section VII - Add Checkbox for Dedicated full-time Project Safety Manager to Schedule A - Delete Schedule F

Discontinue the use of this rider after August 15, 2020

(NO TEXT ON THIS PAGE)

Department of Design and Construction

Issue Date: March 15, 2020

DDC STANDARD GENERAL CONDITIONS

FOR SINGLE CONTRACT PROJECTS

Department of Design and Construction

Issue Date: March 15, 2020

(No Text on This Page)

DIVISION 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
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SECTION 01 10 00
SUMMARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

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, (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" means 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 13.03 "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS"; or Section 01 81 13.04 "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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 must be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE and the Addendum to the General Conditions. The Contractor must cooperate with the commissioning agent and provide whatever assistance is required.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 D

D. PROGRESS SCHEDULE: Refer to Section 01 32 16.1 PROGRESS SCHEDULES (METHOD A) or 01 32 16.2 PROGRESS SCHEDULES (METHOD B) or 01 32 16.3 PROGRESS SCHEDULES (METHOD C) and the Addendum to the General Conditions 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 must be performed by the Contractor as though it were originally delineated or described. The cost of such work will 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 must be performed by the Contractor. The cost of such work will 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, will 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 will 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 will be deemed to have estimated the most expensive way of doing the Work unless the Contractor asked for and obtained a decision in writing from the Commissioner before the submission of the bid as to what must 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 will be subject to the terms of the Contract. The Supplementary Drawings will 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 must 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 must 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 must verify all dimensions, quantities and details shown on the Contract Drawings, Schedules, or other data received from the Commissioner, and must notify the Commissioner of all errors, omissions, conflicts and discrepancies found therein. Notice of such errors will be given before the Contractor proceeds with any work. Figures must be used in preference to scale dimensions and large-scale drawings in preference to small-scale drawings.

1.7 SHOP DRAWINGS AND RECORD DRAWINGS:

A. Refer to Section 01 33 00 SUBMITTAL 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:

A. Refer to Section 01 50 00 TEMPORARY FACILITIES SERVICES AND CONTROLS for the responsibilities of the Contractor.

1.9 DUST CONTROL:

A. The Contractor must 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, must 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 ensure 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 must 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 must be accompanied by a schedule of the types and quantities of materials, and must 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 must 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 must set apart and separately store at the place or places of storage all materials and must clearly mark same "PROPERTY OF THE CITY OF NEW YORK", and further, must 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 must be stored at such locations as will 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 must 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 must 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 must be payable to the City of New York. It must be in such terms and amounts as must be approved by the Commissioner and must be placed with a company duly licensed to do business in the State of New York. The Contractor must 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 must 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 must 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, must 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 will have and may exercise any and all other remedies at law for the recovery of such cost, charges and expenses. There will be no increase in the Contract price for such costs, charges and expenses and the Contractor must not make any claim or demand for compensation therefore.

6. The Contractor must 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 will 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, must 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 must 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 will 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 must 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 must 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 must 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 must 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 will 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, will preclude the Contractor from payments under the Contract.

14. The Contractor must include in each succeeding partial estimate requisition a summary of materials stored which must 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 must 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 must 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 will be deemed included in the total Contract Price. The Detailed Bid Breakdown must reflect, and the Mobilization Payment will be made, in accordance with the following schedule:

Contract Amount	**Mobilization Amount**
Less than $50,000	$0 (No Mobilization Payment)
$50,001 to $100,000	Fixed Amount = $6,000
$100,001 to $500,000	6% of Contract Amount
$500,001 to $ 2,500,000	5% of Contract Amount
Over $2,500,000	Lesser of 4% of Contract Amount or $300,000

The Contractor may requisition for 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 bond;
3. Approval of the Site Safety Plan per the Safety Requirements Section of the Information for Bidders;
4. Approval of the Progress Schedule;
5. Approval of the Schedule Submittal; and,
6. Submission of the Pre-Construction Photographs.

E. ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING: The Contractor must 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 must 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 must: (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 must 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) must 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 will 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 must 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 must be made as brief as possible, and only at such time stated.

2 Under no circumstances will 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 must be avoided at all times and necessary noise must 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 must 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 will be borne by the Contractor.

6 The Contractor must 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 must give ample written notice in advance to the Commissioner and personnel at the facility of any required shutdown.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

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 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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 (City). Commissioning will be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE COMMISSIONING. The Contractor must 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:

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:

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 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” must 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 must 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 must 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 access 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 access for required maintenance, service, and repair of all components, including mechanical and electrical.

B. The Contractor must prepare memoranda for distribution to its subcontractors and other involved entities, outlining special procedures required for coordination. Such memoranda must include required notices, reports, and meeting minutes as applicable.

C. Administrative Procedures: The Contractor must 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 must 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 must 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 must 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 fifteen (15) Days after the Notice to Proceed (NTP), the Contractor must 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 the list in Project meeting room, in temporary field office, and by each temporary telephone. Keep the 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 must have their representatives present to discuss all details relative to the execution of the work. The Resident Engineer will 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 must 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 must 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 Sponsor 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 must 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 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. Sponsor 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; and,
   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 must 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. Sponsor 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; and,
   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; and,
   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 must prepare and submit an RFI in the form specified by the Resident Engineer.

1. RFI must 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 must prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the Resident Engineer, or more frequently if directed by the Resident Engineer.

4. On receipt of responses and action to the RFI, the Contractor must 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:

A. Copies of all correspondence to DDC must be sent directly to the Resident Engineer at the job site.

1.9 CONTRACTOR'S DAILY REPORTS:

A. The Contractor must 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 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required Work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for establishing an effective base line schedule for the Project and documenting the progress of construction during performance of the Work by developing and revising as necessary, various documents including but not limited to the following:
   1. Submittals schedule
   2. Daily construction reports
   3. Material location reports
   4. Field condition reports
   5. Special reports

B. RELATED SECTIONS: :

1.	Section 01 10 00	SUMMARY
2.	Section 01 32 22	PHOTOGRAPHIC DOCUMENTATION
3.	Section 01 32 16.10	PROJECT SCHEDULES (METHOD A)
4.	Section 01 32 16.20	PROJECT SCHEDULES (METHOD B)
5.	Section 01 32 16.30	PROJECT SCHEDULES (METHOD C)
6.	Section 01 33 00	SUBMITTAL PROCEDURES
7.	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” must 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.

PART II – PRODUCTS

2.1 SUBMITTALS SCHEDULE:

A. Preparation: The Contractor must 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. The Submittals Schedule must show all of the following types of submittals:

1. Shop and Coordination Drawings
2. Material Samples
3. Catalog Cuts
4. Test and Evaluation Reports
5. Field Test Reports
6. Sample Warranties
7. Certificates
8. Qualification Data
9. Closeout Submittals

B. Submittals: At the kick-off meeting, the Contractor must have a preliminary Submittals Schedule, and must review this Schedule with the Resident Engineer and the Design Consultant. Within ten (10) Days after the kick-off meeting, the Contractor must complete the Submittals Schedule, including all submission dates, required delivery dates, and fabrication times. The Contractor must include an updated Submittals Schedule with all Progress Payment applications.

C. Review: The Resident Engineer will review the Submittals Schedule submitted by Contractor. Upon acceptance, the Resident Engineer will date and sign the schedule as approved and transmit it to the Design Consultant, Contractor, and others within DDC as the Resident Engineer deems appropriate. If so directed by the Commissioner, the Contractor must revise the Submittals Schedule to indicate a submission date for specified shop drawings and/or material samples within sixty (60) Days after the kick-off meeting. The Contractor must resubmit the Submittals Schedule as necessary to include all review comments.

2.2 REPORTS:

A. Daily Construction Reports: The Contractor must submit to the Resident Engineer written Daily Construction Reports at the end of each day that work was performed, 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 must be prepared by the Contractor's Superintendent and must bear the Contractor's Superintendents signature. Each report must contain the following information:

1. List 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 Completion(s) and occupancies; and,
18. Substantial Completion(s) 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 must submit a Material Location Report at weekly OR monthly intervals as determined and established by the Resident Engineer. Such report must include a comprehensive list of materials delivered to and stored at Project site. List must 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.

2.3 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

(No Text on This Page)

SECTION 01 32 16.10
PROJECT SCHEDULES (METHOD A)

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.10

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes the following:

1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with details of qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the precedence diagramming method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA) and American Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use the Contractor's

own P6 license (whether single-user or Enterprise license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor will be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

    a. The progress of work during that particular period of performance,
    b. Any changes in schedule Logic,
    c. The physical conditions that were used to update every Activities Percent Complete,
    d. Any change in actual Start and Finish Dates,
    e. Any Duration changes,
    f. Any added and deleted Activities, and
    g. Any added Extra Work (e.g. change orders).

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.

Term	**Definition**
Activity	A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule.
Baseline Schedule	The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City.
Critical Path	The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project.
Critical Path Method (CPM)	A management technique used to plan and control a Project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project.
Current Schedule	The most recently updated schedule that captures progress to date and forecasts the dates for each Activity.
Data Date	The date used as a starting point for scheduling calculations. The Data Date is changed to the current end of period date when a schedule is updated for progress.
Duration	The amount of time, in workdays, an Activity will take to perform.

Term	Definition
Finish Date	The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Free Float	The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish).
Fragnet	Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule.
Inclement Weather	Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area.
Integrated Project Schedule	The Commissioner's overall schedule covering design, procurement and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule.
Late Finish	An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Late Start	An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Logic	A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity.
Milestone	A key or critical point in time for reference or measurement.
Network Diagram	A graphic diagram of a network schedule, showing Activities and Activity relationships.
Original Duration	The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a Project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule.
Percent Complete	The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes.
Project Schedule	The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project.
Remaining Duration	The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date.

Term	Definition
Resource and Cost Loading	Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity.
Recovery Schedule	A Recovery 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 minimize delays as much as possible and must establish the nature of efforts; for instance, resources and equipment required, 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 to recover the schedule.
Revised and/or Updated Schedule	A Baseline Schedule, Progress Project Schedule, or Recovery 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 Schedule must be reviewed and approved by the City.
Start Date	The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Time Impact Analysis	A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event.
Total Float	The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date.
Work Breakdown Structure (WBS)	WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control.
Work Days (WD)	Work Days are every consecutive day in the calendar, excluding weekends (Saturday and Sunday) and holidays.

1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. The preliminary Project Schedule must be submitted no later than fifteen (15) Days after NTP.
2. The initial submittal of the Baseline Schedule must be provided to the City for review no later than thirty (30) Days after NTP.

3. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than sixty (60) Days after NTP to ensure that the Baseline Schedule is accepted. The sixty (60) Days must include fourteen (14) Days review times for each submittal of the Baseline Schedule.
4. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CSI) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

1. All Activities for Contractor mobilization, procurement, and construction Activities within the first sixty (60) Days, including permits and submittals. All remaining work forecasted after the first sixty (60) Days must be summarized through the Contract's completion date.
2. All submittal and procurement Activities for long lead items.
3. The Project's Critical Path.
4. An electronic copy of the schedule in either MS Project (.MPP) or Primavera P6 Professional Format (.XER).

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

1.7 PROJECT SCHEDULE:

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following items:

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.
7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) Work Days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc., may exceed twenty (20) Work Days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely defines each Activity. Each description must include a verb or work function (e.g. submit, form, pour, etc.), an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activity in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack, in any schedule, must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not, in any way, affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition, the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above-noted submittals.

1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/ Resources/ Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/ Enterprise Level) to facilitate selection, sorting and preparation of reports.

2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

Activity Code	Meaning
RESP	Responsibility: Identify the party (e.g. Contractor, subcontractor, City, etc.) responsible for the Activity.
PHAS	Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities.
LOCN	Location: Breakdown by floor or elevation.
AREA	Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc.
TRAD	Trade: Breakdown by CSI Code or section number in the Specifications.

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

   a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

1.9 WORK BREAKDOWN STRUCTURE:

A. Structure must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

   1. LEVEL 01 – The Project Level.

   2. LEVEL 02 – Contains a minimum of four (4) nodes: Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.

   3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This level must target specific, tangible, deliverable scopes of Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS Structure must be incorporated into the Baseline and Project Schedule.

1.10 MAJOR MILESTONES:

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work and maintained to represent the progress of the Project.

1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:

A. On a bi-weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic files and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

1.12 SUBMITTALS:

A. General

   1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

   2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

   3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule, the Contractor must submit the following:

   a. Two (2) 11" x 17" hard copies of the proposed preliminary Project Schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

   b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

      i. The proposed WBS;
      ii. All proposed Project Calendars;
      iii. All proposed Activity Codes, clearly defined;
      iv. The proposed Activity ID format; and
      v. Schedule basis narrative, which must memorialize assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will normally return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.

2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.

3. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. A description of the Project scope and how the Work is represented in the schedule Activities;

   b. A description of the overall sequence of major components of Work;

   c. Planned work week for each definable feature of work;

   d. Description of the Critical Path and near Critical Paths;

   e. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-work days;

   f. How regulatory, operational or third-party constraints are accommodated in the schedule;

   g. Description of key Project coordination points or events;

   h. Discussion of long lead items and basis of time frames for submittals; and

   i. Potential opportunities and risks, including quantification of the schedule reduction or expansion.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives are to be submitted in hard copy, as well as in the native electronic format, as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera and MS Word and/or Adobe Acrobat for Narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

   a. The Contractor must furnish two (2) 11" x 17" color hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format with the initial and final schedule update submission.

   b. An Activity bar chart Layout grouped by Activity Code and then sorted by Start Date, Finish Date, and then Total Float.

   c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD) Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

   d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. Any changes to the schedule basis narrative;

   b. Overall health of the Project;

   c. Actual Activity Start Dates;

   d. Actual Activity Finish Dates;

   e. The physical conditions that were used to update Activities percent complete;

   f. Percent of Work reported in place;

   g. A description of the overall sequence of major components of Work;

   h. Description of the Critical Path and near Critical Paths;

   i. Description of key Project coordination points or events;

   j. Discussion of long lead items and basis of time frames for submittals;

   k. Potential opportunities and risks, including quantification of the schedule reduction or expansion;

   l. Assumptions/exclusions made in the schedule;

   m. Contract and Milestone completion date status:

      i. Number of Days ahead or behind schedule and; and

      ii. Days lost/gained compared with the previous update.

   n. Lookahead report listing each Activity in the CPM schedule that is scheduled to be performed during the next reporting period;

   o. Changes in Activity description, Logic, or Duration must be submitted as a separate Proposed Schedule and approved by the City prior to being submitted as an official update. Once allowed, said changes must be grouped and organized in the report in a manner that communicates in detail the rationale associated with each change and

the impact upon construction sequence, relationships and the Critical Path. A standard Digger Report is not sufficient to meet this requirement;

p. Added/deleted Activities and the rationale associated with each action;

q. Pending issues and status of other items;

r. Permits;

s. Contract modifications; and

t. Extra Work, including change orders.

1.13 PROJECT SCHEDULE UPDATING:

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates of the Project Schedule must be submitted monthly until Substantial Completion. The schedule Data Date must be the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the 'schedule Data Date'.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic.

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Activity Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor, and as a result the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum practical concurrence of accomplishment of Activities and comply with the revised schedule.

4. Submit to the City for review a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/ Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City. The Recovery Schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

1.14 TIME IMPACT ANALYSIS:

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Engineer with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 32 16.10

SECTION 01 32 16.20
PROJECT SCHEDULES (METHOD B)

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.20

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes the following:

1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the Precedence Diagramming Method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA) and American Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use

the Contractor's own P6 license (whether single-user or Enterprise license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor will be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

   a) The progress of work during that particular period of performance;
   b) Any changes in schedule Logic;
   c) The physical conditions that were used to update every Activities Percent Complete;
   d) Any change in actual Start and Finish Dates;
   e) Any Duration changes;
   f) Any added and deleted Activities; and,
   g) Any added Extra Work (e.g., change orders).

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.

Term	**Definition**
Activity	A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule.
Baseline Schedule	The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City.
Critical Path	The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project.
Critical Path Method (CPM)	A management technique used to plan and control a Project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project.
Current Schedule	The most recently updated schedule that captures progress to date and forecasts the dates for each Activity.
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Duration	The amount of time, in workdays, an Activity will take to perform.

Term	**Definition**
Finish Date	The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Free Float	The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish).
Fragnet	Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule.
Inclement Weather	Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area.
Integrated Project Schedule	The Commissioner's overall schedule covering design, procurement, and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule.
Late Finish	An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Late Start	An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Logic	A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity.
Milestone	A key or critical point in time for reference or measurement.
Network Diagram	A graphic diagram of a network schedule, showing Activities and Activity relationships.
Original Duration	The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a Project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule.
Percent Complete	The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes.
Project Schedule	The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project.

Term	Definition
Remaining Duration	The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date.
Resource and Cost Loading	Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity.
Recovery Schedule	A Recovery 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 minimize delays as much as possible and must establish the nature of efforts; for instance, resources and equipment required, 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 to recover the schedule.
Revised and/or Updated Schedule	A Baseline Schedule, Project Schedule, or Recovery Schedule for the Project that shows the actual Duration of all the completed Activities, including Duration of and the reasons for delays, if any have 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 Schedule must be reviewed and approved by the City.
Start Date	The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Time Impact Analysis	A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event.
Total Float	The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date.
Work Breakdown Structure (WBS)	WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control.
Work Days (WD)	Work Days are every consecutive day on the calendar, excluding weekends (Saturday and Sunday) and holidays.

1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. Submit the Contractor's CPM Scheduler's qualifications to the City for approval within seven (7) Days after NTP. The City will respond to the submittal within seven (7) Days of the submittal receipt.
2. The preliminary Project Schedule must be submitted no later than twenty-one (21) Days after NTP.
3. The initial submittal of the Baseline Schedule must be provided to the City for review no later than forty-five (45) Days after NTP.
4. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than seventy-five (75) Days after NTP to ensure that the Baseline Schedule is accepted no later than ninety (90) Days after the NTP. The ninety (90) Days must include fourteen (14) Days review time by the City for each submittal of the Baseline Schedule.
5. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

B. Remedies

1. Preliminary Project Schedule: The City will take a credit of three thousand dollars ($3,000) if the preliminary Project Schedule is not submitted within twenty-one (21) Days of the NTP.
2. Acceptable Baseline Schedule: The City will take a credit of five thousand dollars ($5,000) if an acceptable Baseline Schedule is not submitted within ninety (90) Days of the NTP.
3. Monthly Progress Schedule updates: The City will take a credit of two thousand dollars ($2,000) for each schedule update not submitted within the period it was due.
4. Scheduling Firm Services: If an acceptable Baseline Schedule is not provided by the Contractor within ninety (90) Days of the NTP or three (3) updates are not provided by the Contractor during the period they are due, the City may engage the services of a scheduling firm to develop a Project schedule or update an existing schedule. The total cost of such services will be deducted from the monies due to the Contractor.
    a. Any schedules and updates developed by such scheduling firm are for the City's sole use and do not, in any way, represent an acceptance of responsibility by the City to schedule the Work or relieve the Contractor of the obligation to complete the Work within the Durations specified by the Contract.
5. The City will only accept the submitted information after all corrections have been made and all issues have been resolved. The City may find the Contractor in default if items required by this Section are incomplete.

1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CSI) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

1.7 PROJECT SCHEDULE:

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all of the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following items :

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.
7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) work days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc., may exceed twenty (20) work days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely define each Activity. Each description must include a verb or work function (e.g. submit, form, pour etc.) an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activities in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack in any schedule must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not in any way affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition, the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above noted submittals.

1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/Resources/Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/Enterprise Level) to facilitate selection, sorting and preparation of reports.

2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

Activity Code	Meaning
RESP	Responsibility: Identify the party (e.g. Contractor, subcontractor, City, etc.) responsible for the Activity.
PHAS	Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities.
LOCN	Location: Breakdown by floor or elevation.
AREA	Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc.
TRAD	Trade: Breakdown by CSI Code or section number in the Specifications.

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

1.9 WORK BREAKDOWN STRUCTURE:

A. A multi-level hierarchal WBS must be incorporated in all P6 schedules. An initial, proposed WBS must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

1. LEVEL 01 – The Project Level.
2. LEVEL 02 – Contains a minimum of four (4) nodes; Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.
3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This level must target specific, tangible, deliverable scopes of the Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS must be incorporated into the Baseline and Project Schedule.

1.10 MAJOR MILESTONES:

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work packages and maintained to represent the progress of the Project.

1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:

A. On a bi-weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic files and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each Task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

1.12 SUBMITTALS:

A. General

1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule the Contractor must submit the following:

a. Two (2) 11" x 17" hard copies of the proposed preliminary Project schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

i. The proposed WBS;
ii. All proposed Project Calendars;
iii. All proposed Activity Codes, clearly defined;
iv. The proposed Activity ID format; and
v. Schedule basis narrative, which must memorialize assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of

comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.

2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.

3. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. A description of the Project scope and how the Work is represented in the schedule Activities;

   b. A description of the overall sequence of major components of Work;

   c. Planned work week for each definable feature of work;

   d. Description of the Critical Path and near Critical Paths;

   e. Basis of Durations, described in terms of quantity and production rate;

   f. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-Work Days;

   g. How regulatory, operational or third-party constraints are accommodated in the schedule;

   h. Description of key Project coordination points or events;

   i. Discussion of long lead items and basis of time frames for submittals;

   j. Description of anticipated means and methods for large quantity production Activities; and,

   k. Potential opportunities and risks, including quantification of the schedule reduction or expansion.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives are to be submitted in hard copy, as well as in the native electronic format, as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera schedule files and MS Word and/or Adobe Acrobat for Narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

   a. The Contractor must furnish two (2) 11” x 17” hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format, with the initial and final schedule update submission.

   b. An Activity bar chart layout grouped by Activity Code and then sorted by Start Date, Finish Date, and then Total Float.

   c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD) Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

a. Any changes to the schedule basis narrative
b. A discussion of progress through the update period and status of the Project with respect to completion of the schedule. The progress reporting must detail work Activities that relate to the Project's Critical Path and if these Activities are progressing as planned.
c. A discussion of changes, delays or other circumstances affecting Progress including identified risks and opportunities and the Contractor's strategy.
d. A listing and brief explanation of modifications to the previously submitted network including Logic changes and Activity additions, deletions or modifications.
e. An update on the status of long lead items and whether the item is on the Critical Path.
f. The Contractor must report on all out of sequence Activities, the cause of this deviation to plan, and the proposed resolution of this issue.
g. The Contractor must include an explanation of assumptions and exclusions made in developing the schedule update and narrative.

5. The Contractor must provide a copy of the computer file(s) in electronic format or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files and an electronic copy of the Narrative Report.

1.13 PROJECT SCHEDULE UPDATING:

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates of the Project Schedule must be submitted monthly until Substantial Completion. The schedule data date must be the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the 'schedule Data Date'.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and Narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic;

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Activity Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor and, as a result, the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum practical concurrence of accomplishment of Activities and comply with the revised schedule.

4. Submit to the City for review a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/ Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City.

1. The recovery schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

2. The Recovery Schedule must be resource-loaded with manpower and equipment required to bring the date for Substantial Completion back into compliance.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

1.14 TIME IMPACT ANALYSIS:

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Engineer with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 32 16.20

(No Text on This Page)

SECTION 01 32 16.30
PROJECT SCHEDULES (METHOD C)

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.30

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes the following:

1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the Precedence Diagramming Method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA), and American

Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use the Contractor's own P6 license (whether single-user or Enterprise license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor must be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

   a) The progress of work during that particular period of performance;
   b) Any changes in schedule Logic;
   c) The physical conditions that were used to update every Activities Percent Complete;
   d) Any change in actual Start and Finish Dates;
   e) Any Duration changes;
   f) Any added and deleted Activities; and
   g) Any added Extra Work (e.g., change orders).

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.

Term	**Definition**
Activity	A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule.
Baseline Schedule	The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City.
Critical Path	The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project.
Critical Path Method (CPM)	A management technique used to plan and control a project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project.
Current Schedule	The most recently updated schedule that captures progress to date and forecasts the dates for each Activity.

Term	**Definition**
Data Date	The date used as a starting point for scheduling calculations. The Data Date is changed to the current end of period date when a schedule is updated for progress.
Duration	The amount of time, in workdays, an Activity will take to perform.
Finish Date	The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Free Float	The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish).
Fragnet	Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule.
Inclement Weather	Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area.
Integrated Project Schedule	The Commissioner's overall schedule covering design, procurement, and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule.
Late Finish	An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Late Start	An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship.
Logic	A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity.
Milestone	A key or critical point in time for reference or measurement.
Network Diagram	A graphic diagram of a network schedule, showing Activities and Activity relationships.
Original Duration	The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule.

Term	**Definition**
Percent Complete	The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes.
Project Schedule	The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project.
Remaining Duration	The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date.
Resource and Cost Loading	Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity.
Recovery Schedule	A Recovery 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 minimize delays and must establish the nature of efforts; for instance, resources and equipment required, 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 to recover the schedule.
Revised and/or Updated Schedule	A Baseline Schedule, or Progress Project Schedule, or Recovery Schedule for the Project that shows the actual Duration of all the completed Activities, including Duration of and the reasons for delays, if any have 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 Schedule must be reviewed and approved by the City.
Start Date	The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship.
Time Impact Analysis	A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event.
Total Float	The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date.

Term	Definition
Work Breakdown Structure (WBS)	WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control.
Work Days (WD)	Work Days are every consecutive day on the calendar, excluding weekends (Saturday and Sunday) and holidays.

1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. Submit the Contractor's CPM Scheduler's qualifications to the City for approval within seven (7) Days after NTP. The City will respond to the submittal within seven (7) Days of the submittal receipt.

2. The preliminary Project Schedule must be submitted no later than twenty-one (21) Days after NTP.

3. The initial submittal of the Baseline Schedule must be provided to the City for review no later than forty-five (45) Days after NTP.

4. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than seventy-five (75) Days after NTP to ensure that the Baseline Schedule is accepted no later than ninety (90) Days after the NTP. The ninety (90) Days must include fourteen (14) Days review time by the City for each submittal of the Baseline Schedule.

5. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

B. Remedies

1. Preliminary Project Schedule: The City will take a credit of three thousand dollars ($3,000) if the preliminary Project Schedule is not submitted within twenty-one (21) Days of the NTP.

2. Acceptable Baseline Schedule: The City will take a credit of five thousand dollars ($5,000) if an acceptable Baseline Schedule is not submitted within ninety (90) Days of the NTP.

3. Monthly Progress Schedule updates: The City will take a credit of two thousand dollars ($2,000) for each schedule update not submitted within the period it was due.

4. Scheduling Firm Services: If an acceptable Baseline Schedule is not provided by the Contractor within ninety (90) Days of the NTP or three (3) updates are not provided by the Contractor during the period they are due, the City may engage the services of a scheduling firm to develop a Project schedule or update an existing schedule. The total costs of such services will be deducted from the monies due to the Contractor.

5. Any schedules and updates developed by such scheduling firm are for the City's sole use and do not, in any way, represent an acceptance of responsibility by the City to schedule the Work or relieve the Contractor of the obligation to complete the Work within the Durations specified by the Contract.

6. The City will only accept the submitted information after all corrections have been made and all issues have been resolved. The City may find the Contractor in default if items required by this Section are incomplete.

1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CIS) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

1.7 PROJECT SCHEDULE:

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor’s execution plan to complete the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following, items:

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.

7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) Work Days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc. may exceed twenty (20) Work Days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely defines each Activity. Each description must include a verb or work function (e.g. submit, form, pour etc.), an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activities in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack, in any schedule, must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not, in any way, affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition,

the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above-noted submittals.

P. The Contractor must provide a Cost Flow Projection (CFP) summary covering from NTP to Final Acceptance. The CFP summary must match the expected billings for each period of performance.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7.Q

Q. Schedule Cost and Resource Loading

1. At the direction of the City, and at no additional cost to the City, a Project Schedule must be cost loaded within thirty (30) Days after acceptance of the Baseline Schedule.
2. The Contractor must accurately load all Project Activities with direct field labor associated with the craft or trades required to complete that Activity. All labor must be noted in manhours required to complete the tasking. The Contractor must include in all Activities the hours required of for major pieces of equipment.
3. All Resource ID's must have a unique identifier assigned by the Contractor, and approved by the City, so the Project-specific data can be separated from other data in the system.
4. Cost loading must be accomplished by adding a single summary level cost loaded Activity in the Project Schedule. This Activity will allow initial generation and monthly updates of the planned value that is time-phased into monthly periods.
5. The intent of the cost loading is to facilitate cost forecasting, tracking, and reporting of monthly cost projection. Every month, the cost loaded summary Activity must be updated with earned value for prior months and revised monthly forecast for future periods. If there is a significant difference between the actual cumulative monthly invoice and the cumulative planned value from the cost loaded Project Schedule for any reporting month, the Contractor must provide the City with the reason for variance in the schedule narrative.

1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/Resources/Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/Enterprise Level) to facilitate selection, sorting and preparation of reports.
2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

Activity Code	Meaning
RESP	Responsibility: Identify the party (e.g. Contractor, subcontractor, City, etc.) responsible for the Activity.
PHAS	Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities.
LOCN	Location: Breakdown by floor or elevation.
AREA	Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc.
TRAD	Trade: Breakdown by CSI Code or section number in the Specifications.

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

1.9 WORK BREAKDOWN STRUCTURE:

A. A multi-level hierarchal WBS must be incorporated in all P6 schedules. An initial, proposed WBS must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

1. LEVEL 01 – The Project Level.

2. LEVEL 02 – Contains a minimum of four (4) nodes: Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.

3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This Level must target specific, tangible, scopes of the Project Work.

4. LEVEL 04 – Decomposition of Level 03 Activities providing work package details that provide an understanding of the process to be used to execute the Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS must be incorporated into the Baseline and Project Schedule.

1.10 MAJOR MILESTONES:

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work and maintained to represent the progress of the Project.

1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:

A. On a weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

1.12 SUBMITTALS:

A. General

1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP), followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule, the Contractor must submit the following:

a. Two (2) 11" x 17" hard copies of the proposed preliminary Project Schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

i. The proposed (WBS);
ii. All proposed Project Calendars;
iii. All proposed Activity Codes, clearly defined;
iv. The proposed Activity ID format; and
v. Schedule basis narrative, which must memorialize the assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.

2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.

3. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:

a. A description of the Project scope and how the Work is represented in the schedule Activities;

b. A description of the overall sequence of major components of Work;

c. Planned work week for each definable feature of work.

d. Description of the Critical Path and near Critical Paths;

e. Basis of Durations, described in terms of quantity and production rate;

f. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-work days;

g. How regulatory, operational or third-party constraints are accommodated in the schedule;

h. Description of key Project coordination points or events;

i. Discussion of long lead items and basis of time frames for submittals;

j. Description of anticipated means and methods for large quantity production Activities;

k. Potential opportunities and risks, including quantification of the schedule reduction or expansion; and

l. Assumptions/exclusions made in the schedule.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives must be submitted in hard copy and the native electronic format as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera schedule files and MS Word and/or Adobe Acrobat for narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

   a. The Contractor must furnish two (2) 11” x 17” hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format with the initial and final schedule update submission.

   b. An Activity bar chart Layout grouped by Activity Code and then sorted by Start Date, Finish Date, and Total Float.

   c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD), Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

   d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

a. Any changes to the schedule basis narrative;

b. Overall health of the Project;

c. Actual Activity Start Dates;

d. Actual Activity Finish Dates;

e. The physical conditions that were used to update Activities percent complete

f. Percent of Work reported in place;

g. Contract and Milestone completion date status:

   i. Number of Days ahead or behind schedule; and
   ii. Days lost/gained compared with the previous update.

h. Schedule change report organized by Milestone and area comparing the number of Activities that were planned to start and finish to the number that actually started and finished for the reporting period;

i. Lookahead report listing each Activity in the CPM schedule that is scheduled to be performed during the next reporting period;

j. Plans for executing scheduled Activities during the next reporting period;

k. Analysis, organized by Milestone and area, of the Critical Path and near Critical Path(s) describing:

   i. The nature of the Critical Path/near Critical Path;
   ii. Impact on other Activities, Milestones and Finish dates; and
   iii. Identify, or update, risks and opportunities that may impact the Critical Path/near Critical Paths.

l. List of current and anticipated delays by Milestone:

   i. Cause of the delay;
   ii. Corrective actions and schedule adjustments to correct the delay;
   iii. Impact of the delay on other Activities, Milestones and completion dates; and
   iv. Weather delays, when applicable. The Contractor must describe how the impacts of weather conditions and constraints were absorbed and accounted for in the schedule.

m. Changes in Activity description, Logic, or Duration must be submitted as a separate Proposed Schedule and approved by the City prior to being submitted as an official update. Once allowed, said changes must be grouped and organized in the report in a manner that communicates in detail the rationale associated with each change and the impact upon construction sequence, relationships and the Critical Path. A standard Digger Report is not sufficient to meet this requirement;

n. Added/deleted Activities and the rationale associated with each action;

o. Pending issues and status of other items;

p. Permits;

q. Contract modifications;

r. Current and potential extra Work, including change orders;

s. Status of long lead procurement items and whether the item is on the Critical Path;

t. Status of Project submittals;

u. Out of sequence report describing the necessity of each Activity relationship shown therein, as described within this Section;

v. Illogical progress/restraint reports (if any);

w. Other Project or scheduling concerns;

x. Electronic copy of the latest CPM schedule update file in Primavera (.XER) format; and

y. Primavera scheduling error report.

1.13 PROJECT SCHEDULE UPDATING:

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates to the Project Schedule must be submitted monthly until Substantial Completion is achieved. The schedule Data Date must be set to the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the 'schedule Data Date'.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic.

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor, and as a result the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum resource utilization across the Project and comply with the revised schedule.

4. Submit to the City a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule. The Contractor must promptly provide the necessary level of effort to bring the Work back on schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical, or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City. The Recovery Schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

1.14 TIME IMPACT ANALYSIS:

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Engineer with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 32 16.30

SECTION 01 32 33
PHOTOGRAPHIC DOCUMENTATION

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 33

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes the following:
   1. 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 must employ and pay for the services of a professional photographer who will take photographs showing the progress of the Work.

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” must 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 (4) color prints of each photographic view for each trade to the Resident Engineer. Such Progress Photographs must be included in each monthly progress report or as otherwise directed by the Resident Engineer.

D. Digital Files: Submit digital files in the format required.

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 (3) years.

1.6 COORDINATION:

A. The Contractor and its subcontractor(s) must cooperate with the photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, such as temporary lighting required to produce clear and well-lit photographs without obscuring shadows.

1.7 COPYRIGHT:

A. The Contractor must include the provisions of this Subsection 1.7 in the agreement between the Contractor and the Photographer who will provide the construction photographs described in this Section. The Contractor must 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, will, 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") will 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 will 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 will retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials must 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 must 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 must be provided to the City.

PART II – PRODUCTS

2.1 PHOTOGRAPHIC MEDIA:

A. Digital Images: Digital files must be captured as 7.2 megapixel files or greater, with a minimum pixel array of 2,400 pixels by 3,000 pixels. The camera used to capture the digital files must be a Digital SLR (Single Lens Reflex) camera or approved equal; "point and shoot" cameras or camera phones are not acceptable. Digital cameras must produce images using true optical resolution; "digital zoom" is not acceptable. Images must not be resized or interpolated. The file format for digital files must be Joint Photographic Experts Group format ("JPG"). The digital files must not be modified or processed in any way to alter the JPG file's metadata, including the photograph's original capture date.

B. Digital Files: Digital files must be submitted on Digital Versatile Disk ("DVD") or as specified by the Commissioner. DVDs must be inserted in standard weight Archival Quality clear poly sheet protectors and submitted in a hard cover three (3) ring binder. The information imprinted on each print must be provided on an Excel file included on the DVD. The DVD must be labeled with the Project ID and the Project description. Labeling using adhesive labels is not acceptable.

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 1-inch 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 that provide the largest possible depth-of-field while still 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. 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 USB drive, or other electronic media requested by the Commissioner, in the field office at the Project site so that it is available at all times for reference. Ensure that the images are the same as for those submitted to Commissioner.

3.2 PRE-CONSTRUCTION & PRE-DEMOLITION PHOTOGRAPHS:

A. Before commencement of Contract Work at the Project 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 New York City 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 New York City 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 must 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, must 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.

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 (4) color photographic prints of each view as directed.

3.5 VIDEO RECORDING:

A. When Video Recording of Demonstration and Orientation sessions is required, the Contractor must 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. For submission as Project Record Documents, take color photographs of minimum eight (8) unobstructed views of the completed Project and/or Project site, as directed by the Commissioner and after all scaffolding, hoists, shanties, field offices or other temporary work has been removed and final cleaning has been done after date of Substantial Completion. 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

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL:

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Coordination Drawings, Catalogue Cuts, Material Samples, and other Submittals required by the Contract Documents.
B. Review of Submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such Submittals, nor from responsibility for complying with the requirements of the Contract.
C. Responsibility of the Contractor: The approval of Shop Drawings will be general and will not relieve the Contractor of the following responsibilities:
   1. Accuracy of such Shop Drawings;
   2. Proper fitting and construction of the Work
   3. Furnishing of materials or Work required by the Contract that may not be indicated on the Shop Drawings.
D. Approval of Shop Drawings must not be construed as approving departures from the Contract Drawings, Supplementary Drawings, or Specifications.
E. 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 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 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS
H. Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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” must 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. Informational Submittals may be rejected for non-compliance with the Contract.

E. Shop Drawings: 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 must 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 must 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) must include, without limitation, the following information:
   1. General Construction Contract Work: show the reflective ceiling plan, including starting points, ceiling and beam soffits elevations, ceiling heights, roof openings, etc.
   2. HVAC Contract Work: show ductwork, heating and sprinkler piping, location of grilles, registers, etc., and access doors in hung ceilings. Locations must be fixed by elevations and dimensions from column centerlines and/or walls.
   3. Plumbing Contract Work: show piping, valves, cleanouts etc., indicating locations, elevations and indicating the necessary access doors.

4. Electrical Contract Work: show fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.

B. The Contractor must 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 Consultant where necessary, to resolve any conflicts that become apparent.

C. Upon resolution of any conflicts, the Contractor must provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) must 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) must be provided by the Contractor to each of the appropriate subcontractor(s), the Resident Engineer, and the Design Consultant for information.

E. Shop Drawings must not be submitted prior to acceptance of the final coordinated drawings and must 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 in 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 must 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 must be, generally, as follows:

   a. The Contractor must make available to its subcontractors the necessary Contract Documents and must instruct such subcontractor to determine dimensions and conditions in the field, particularly in reference to coordination between the trade subcontractors. The Contractor must direct its subcontractors to prepare Shop Drawings for submission to the Design Consultant in accordance with the requirements of these General Conditions. The Contractor must also direct its subcontractors to "Ring Up" corrections made on all re-submissions for approval, so as to be readily seen, and that the appropriate symbol per item 2 below (e.g., "GC") be used to identify the source of the correction or information that has been added.

      The Contractor must:

      1. Review and be responsible for information shown on its subcontractor's Shop and Installation Drawings and manufacturers' data, and 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 must 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 must be made in accordance with the Contract Drawings, Specifications and Supplementary Drawings, if any. The Shop Drawings must 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, must 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 must be numbered consecutively and must 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 must 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.
   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 must be signed by the Contractor and, if applicable, the subcontractor responsible for preparation of the Shop Drawings. Each Shop Drawing must 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 must, in its statement, list

and clearly describe each 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 must submit seven (7) copies, or as requested by the Resident Engineer, of each Shop Drawing to the Design Consultant for his/her review and acceptance. If PDF drawings are requested by the Resident Engineer, they must be provided in an original "printed from digital" format, and not scanned. 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 must 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" will 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 must 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 must be transmitted to the subcontractors so affected. [These accepted Shop Drawings must 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 must make specific mention of such variations in its letter of Submittal. Acceptance of the Shop Drawings must 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 must conform to the procedures specified in subsection 1.6 F, Shop Drawings.

2. If information must be specially prepared for the Submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

3. Mark each copy of the 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 must submit seven (7) sets of Product Data to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Product Data to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory catalogue cut will be stamped "No Exception Taken", be dated and distributed as follows:

      1) Two (2) copies thereof will be returned to the Contractor by letter

      2) Three (3) copies of the Product Data and copy of the transmittal letter to the Contractor will be forwarded to DDC

      3) One copy will be retained by the Design Consultant

      4) One copy will be forwarded / retained by sub-consultant(s) as appropriate

      Should the Product Data be “Rejected” or noted “Revise and Resubmit” by the Design Consultant, the Design Consultant will return one (1) set of such Product Data to the Contractor with the necessary corrections and changes to be made indicated and one (1) set to DDC.

7. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each Product Data for the review of the Design Consultant. The Contractor must 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" must 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 01 35 06 GENERAL ELECTRICAL REQUIREMENTS.

2. Samples must be in triplicate or as directed by the Resident Engineer, and of sufficient size to show the quality, type, range of color, finish and texture of the material.

3. Each of the samples must 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 must be as required in the Specifications.

7. Samples on Display: When samples are specified to be equal to approved product, they must 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 must 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 must be furnished equal in every respect to the accepted samples.

9. The acceptance of any samples will be given as promptly as possible, and will be only for the characteristic color, texture, strength, or other feature of the material named in such acceptance, and no other. When this acceptance 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 must 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 must 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 the following sections:

1. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL;
2. Section 01 81 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS, as applicable;
3. Section 01 81 13.13 VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED v3 BUILDINGS;
4. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS;
5. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS; and/or,
6. Section 01 91 15 BUILDING ENCLOSURE COMMISSIONING REQUIREMENTS.

B. LEED Building Submittal information must be assembled into one package per each applicable Specification Section, separate from all other non-LEED Submittals. Each Submittal package must have a separate transmittal and identification as described in Subsection 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 Subsection 1.6 of Section 01 81 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 PROJECTS, or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

1. Provide the quantity, length, area, volume, weight, and/or cost of each product submitted as required to satisfy LEED documentation requirements. Refer to Subsection 1.6 of Section 01 81 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 PROJECTS.

1.8 ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:

A. In accordance with Section 01 10 00 SUMMARY, Subsection 1.10 E**,** the Contractor must 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 must be in accordance with the schedule, format, directions and procedures established by the Commissioner.

1.9 CONSTRUCTION PHOTOGRAPHS AND VIDEO RECORDINGS:

A. Submit construction progress photographs and Video 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.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 33 00

SECTION 01 35 03

GENERAL MECHANICAL REQUIREMENTS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 03

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. The General Mechanical Requirements contained herein must 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 must 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: 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 must 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 must 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 must follow these Contract Drawings in laying out the Work and verify the spaces in which it will be installed. The Contractor must 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 ACCESS:

A. All Work must be installed by the Contractor to readily provide access for inspection, operation, maintenance and repair. Minor deviations from the arrangement indicated on the Contract Drawings may be made to accomplish this, but they must not be made without prior written approval by the Commissioner.

1.7 CHANGES IN PIPING, DUCTS, AND EQUIPMENT:

A. 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 must make such changes as directed and approved, without extra cost to the City.

1.8 CLEANING OF PIPING, DUCTS, AND EQUIPMENT:

A. Piping, ducts, and equipment must 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 must pay for repairs to other work damaged in the course of removing obstructions. For work on existing piping, ducts, and equipment, the Contractor must 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:

A. Unless otherwise particularly specified, all equipment of the same kind, type, or classification, used for identical purposes, must be the product of one (1) manufacturer.

1.10 SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR:

A. Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor must be designed by an Engineer licensed in New York State retained by the Contractor. Supporting structures must be built by the Contractor of sufficient strength to safely withstand all stresses to which they may be

subjected, within permissible deflections, and must meet the following standards:

1. Structural Steel - ASTM Standard Specifications, AISC and New York City Construction Codes.
2. Concrete for supports for equipment must conform to the Specifications for concrete herein, but in no case must be less than the requirements of the New York City Construction Codes for average concrete.
3. Steel reinforcement for concrete must be of intermediate grade and must meet the requirements of the Standard Specifications for Billet Steel-Concrete Reinforcement Bars, ASTM.
4. Drawings and calculations must 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 must 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 must, 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 that is 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 must, 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:

A. As soon as conditions permit, the Contractor must furnish all necessary labor and materials for, and must 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 must, prior to the acceptance test, make all changes, adjustments, and replacements as required.

1.13 INSTRUCTIONS ON OPERATION:

A. At the time the equipment is placed in permanent operation by the City, the Contractor must make all adjustments and tests required by the Commissioner to prove that such equipment is in proper and satisfactory operating condition. The Contractor must 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:

A. On completion of the Work, the Contractor must obtain certificates of inspection, approval, and acceptance, and be in compliance with all laws from all agencies and/or entities having jurisdiction over the Work and must deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES. The Work will not be deemed substantially complete until the certificates have been delivered.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 35 03

(No Text on This Page)

SECTION 01 35 06
GENERAL ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section 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, must take precedence.

B. This Section includes the following:

1. Related Sections
2. Definitions
3. Procedure for Electrical Approval
4. Submittals
5. Electrical Installation Procedures
6. Electrical Conduit System Including Boxes (Pull, Junction and Outlet)
7. Electrical Wiring Devices
8. Electrical Conductors and Terminations
9. Circuit Protective Devices
10. Distribution Centers
11. Motors
12. Motor Control 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: contains wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).

B. POWER WIRING: 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: 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: rigid steel heavy wall conduit that is hot-dip galvanized inside and outside. The conduit must 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 must be used for all exposed work, all underground conduits in contact with earth, and fire alarms systems, as required by the New York City Construction Codes.

E. ELECTRICAL METALLIC TUBING (EMT): industry standard thin wall conduit of galvanized steel. All elbows, bends, couplings and similar fittings which are installed as a part of the conduit system must be compatible for use with electric metallic tubing. Couplings and terminating fittings must be of the pressure type as approved by the Commissioner. Set screw fittings will not be acceptable. EMT must 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): 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 must 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 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 must 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 must 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 must be made as required by the Commissioner of all electrical materials, electrical and associated mechanical equipment, and of appliances installed hereunder. The Contractor must 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, on written notice the Contractor must remove and promptly replace the materials to be in conformity with the Contract.

D. CERTIFICATE OF THE BUREAU OF ELECTRICAL CONTROL, OF THE DEPARTMENT OF BUILDINGS (B.E.C.): Prior to requesting a substantial completion inspection, the Contractor must file a Certificate of Inspection issued by B.E.C. On completion of the Work, the Contractor must obtain certificates of inspection, approval, acceptance and compliance from all agencies and/or entities having jurisdiction over the work and must 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 must be responsible for the equipment until it has been inspected, tested and accepted, in accordance with the requirements of the Contract.

2. After delivery, before and after installation, the Contractor must protect all equipment against theft, injury or damage from all causes. The Contractor must carefully store all equipment received for work which is not immediately installed. If any equipment has been subject to possible injury by water, it must 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, must be made by the same manufacturer.

1.6 SUBMITTALS:

A. CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL:

1. The Contractor must 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 must be included. A letter, in triplicate, must accompany each submittal.

2. The Contractor must 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 must 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 must 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 must submit a statement in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.

D. BULLETINS AND INSTRUCTIONS: The Contractor must 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 must 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 must 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 access for repairs, even if this selection is the costliest.

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; must be furnished and set by the Contractor installing the conduits. Sleeves in waterproofed floors must be provided with flashing extending twelve (12) inches in all directions from sleeve and secured to waterproofing. Flashing must be turned down into space between pipe and sleeve and caulked watertight. Flashing must be twenty (20) ounces cold rolled copper. Sleeves must be supplied with welded flanges similar to those supplied by the subcontractor for Plumbing Work and must extend one (1) inch above finished floor.

D. COORDINATION: The Contractor must keep in close touch with the construction progress and promptly obtain the necessary information for the accurate placement of its work well 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 must be repaired or replaced by the Contractor. The Contractor must 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 must 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, must furnish this unit, ready for connection and operation, complete with internal wiring, connections, terminal boxes with

copper connectors and/or lugs and ample electrical leads. The cost of any wiring, re-wiring, or other work required to be done on this unit in the field, must 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 must 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 must be used throughout, unless otherwise directed by the Commissioner. Where the word 'conduit' is used without a modifier such as, rigid steel, EMT, etc., must 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 must be installed concealed in finished spaces.

2. CONDUIT SIZES: The sizes of conduits must be as indicated on the Contract Drawings. Wherever conduit sizes are not indicated, the conduit must meet the requirements of the New York City Electrical Code to accommodate the conductors to be installed therein.

3. Conduits must be reamed smooth after cutting. No running threads will be permitted. Universal type couplings must be used where required. Conduit joints must be screwed up to butt. Empty conduits after installation must have all open ends temporarily plugged to prevent the entrance of water or other foreign matter.

4. Conduits installed in concrete or masonry must be securely held in place during pouring and construction operations. A group of conduits terminating together must be held in place by a template.

5. UNDERGROUND STEEL CONDUITS: Unless otherwise specified, all underground steel conduits in contact with earth must 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 must 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 must 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 must 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 must secure and pay for all necessary permits, inspection fees, and the cost of repaving.

7. EXPOSED CONDUIT SUPPORTS: Exposed conduits must be supported by Galvanized hangers with necessary inserts, beam clamps of approved design, or attached to walls or ceilings by expansion bolts. Exposed conduits must be supported or fastened at intervals not more than five (5) feet.

8. Exposed conduits must be installed parallel or at right angles to ceilings, walls and partitions. Where direction changes of exposed conduit cannot be made with neat bends, as may be required around beams or columns, conduit-type fittings must be used.

9. Conduit must be installed with an expansion joint approved by the Commissioner in the following conditions:

    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. Conduits may only enter and leave a floating slab in a vertical direction, and only in an approved manner. Horizontal entries into floating slabs are not permitted.

11. Conduits installed in pipe shafts must 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 must be provided to assure stability of the raceway system.

12. BUSHINGS AND LOCKNUTS: Approved bushings and locknuts must be used wherever conduits enter outlet boxes, switch boxes, pull boxes, panel board cabinets, etc.

13. CONDUIT BENDS: must be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduits of two (2) inch in diameter or larger must be made with a hydraulic or power pipe bender. The radius of the inner edge of any bend must 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 ten (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 must 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 must be turned to approximately 85% of the internal diameter of the raceway to be tested. Two (2) short wire brushes must be included in the mandrel assembly. Snaking of conduits, ducts, etc., must be performed by the Contractor in the presence of the Resident Engineer. Any conduits or ducts which reject the mandrel must 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 must be assigned to the various conduit runs, and as they test clear they must 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, must be tagged.

    c. TEST RECORDS: As the conduit runs clear, a record must 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 must be signed by the Resident Engineer and submitted in triplicate for approval. This record must be entered on the Contract Record Drawings under Section 01 78 39 CONTRACT RECORD DOCUMENTS.

    d. CAPPING: After test, all empty conduit and duct openings, must be capped or plugged by the Contractor as directed.

    e. DRAG LINES: A drag line must be left in all empty conduit.

B. BOXES:

1. The Contractor must furnish and erect all pull boxes indicated on the plans or where required. Sides, top and bottom of pull boxes must be Galvanized coated and must 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 must be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations must have threaded hubs and gaskets and be NEMA 4X. All pull boxes must 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 must be supported from the black iron or structure.

3. The exact location of all outlets in finished rooms must be as directed by the Commissioner. When the interior finish has been applied, the Contractor must make any necessary adjustment of its work to properly center the outlets. All outlet boxes for local switches near doors must be located at the strike side of doors as finally hung, whether so indicated on the drawings or not.

4. Exposed wall outlet boxes must be securely anchored, erected neatly and tight against the walls.

5. All wall outlets of each type must be set accurately at the same level on each floor, except where otherwise specified or directed by the Commissioner. Where special conditions occur, outlets must 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 by the Commissioner
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 must be of a design and construction approved by the Commissioner. The type of box, including its form and dimensions, must be appropriate for: its specific location; the kind of fixture to be used; and, the conduits (both quantity and type) that will connect to it. All ferrous outlet boxes must meet the requirements for zinc coating as specified under Electrical Conduit Systems.

8. Knockouts will only be opened to insert conduit. Any outlet boxes with more openings than are necessary for conduit insertion must be sealed by the Contractor without additional charge.

9. All outlet boxes and junction boxes for exposed work must be galvanized cast iron or cast aluminum with threaded openings. Outlet boxes for exposed inside work in damp locations must be galvanized cast iron or cast aluminum with threaded hubs and neoprene gaskets.

10. Junction boxes must not be less than 4 11/16" square and must be equipped with zinc coated plates. Where plates are exposed they must be finished to match the room decor.

11. FIXTURE SUPPORTS: Outlet boxes supporting lighting fixtures must be equipped with fixture studs held by approved galvanized stove bolts or integral with the box. Cast iron or malleable boxes must have four (4) tapped holes for mounting required cover or fixtures.

12. Outlet boxes exposed to the weather or indicated W.P. must be cast iron or cast aluminum with the covers made watertight with neoprene gaskets. The boxes must have external lugs for mounting. Drilling of the body of the fitting for mounting will not be permitted. The cover screws must 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: must be of the best specification grade, quiet type, and must have a rating of 20 Amperes at 277 volts, as manufactured by Bryant, Hubbell or approved equal. The mechanism must be equipped with arc snuffers. They must be of the tumbler type, single pole. Switches of the 3-way type must have a similar rating.

B. RECEPTACLES:

1. CONVENIENCE OUTLETS: must be of the best specification grade, duplex, two-pole, 3-wire, 20 Amperes at 125 volts. It must have a grounding pole that must be grounded to the conduit system. Receptacles must be capable of both back and side wiring and must have only one (1) grounding screw. Receptacles must be Hubbell Catalog #5262 or approved equal.

2. HEAVY DUTY RECEPTACLE OUTLETS: must have the Ampere rating and the number of poles specified on the Contract Drawings and must be Hubbell, Russell-Stoll, Bryant, AH & H or approved equal. Each outlet must have a grounding pole, which must be grounded to the conduit system.

3. FLOOR RECEPTACLES: must 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 must 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 must be in a gasketed, cast iron enclosure.

E. PLATES:

1. Every convenience outlet and switch outlet must 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 must 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 must be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation must be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees Celsius (C.) for both wet and dry locations. Wires No. 8 or larger must be stranded. Wires and cables must also

be subject to the requirements of the NYCEC. Cables for incoming service, or wire in conduits contiguous with the earth, in concrete, or other damp or wet locations, must be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and must 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 must 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 must not be used for light or power.

E. COLOR CODE: Wires must have a phase color code, and multiple conductor cables must be color coded.

F. CABLE DATA: The Contractor must 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 must 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 must not be installed into conduit before the rough plastering work is completed. No conductors must be pulled into floor conduits before floor is poured.
2. CONDUIT SECURED IN PLACE: No conductor must 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 must be left with sufficiently long ends for proper connection and stowing.
4. PULLING COMPOUNDS: to ease the pulling-in of wires into the conduit, only approved compounds as recommended by cable manufacturers must be used.
5. PRESSURE CONNECTORS: pressure connectors for wires must be of the cast copper or forged copper pressure plate type. Connectors must be O.Z., Burndy, National Electric Products or approved equal.
6. Splices and feeder taps in the gutters of panel boxes must 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, must 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 must be as approved by the connector manufacturer.

b. For branch circuit wire and cable No. 6 AWG and larger, the seamless tubular connector will only be accepted. Application of this connector must be with a tool recommended by the connector manufacturer.

9. TAGS: All feeders and risers must be tagged at both ends, and in all pull and junction boxes and gutter spaces through which they pass. Such tags must be of fiber and have the feeder designation and size stamped thereon.

10. BRANCH CIRCUIT WIRING:

a. The Contractor installing branch circuit wiring must test the work for correct connections and leave all loop splices in the fixture outlet boxes properly spliced and taped. The Contractor must provide wire ends long enough for convenient connection to device.

b. NEUTRALS: No common neutrals must be used except for lighting branch circuits. Each neutral wire must 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 must 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 must be cast copper or forged copper pressure plate type. Lugs for 1/0 and larger must be fastened with two (2) bolts.

2. All lugs must 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 ensure 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: must be operable in any position and must be of the quick-make, quick-break type on manual operation. The handle must 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 must be provided, in addition to the "On" and "Off" indication. All circuit breakers must be of the bolted type.

2. TRIP RATING: Circuit breakers must 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 must be designed to break all poles simultaneously. They must be provided with barriers between poles and arc suppressing devices.

4. ELEMENTS: Multipole circuit breakers must have frames of not less than a 100 Ampere rating. Multipole circuit breakers for 480 volts AC operation must have an NEMA interrupting rating of 18,000 Amperes, unless a higher rating is specified in the Specifications 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 must be provided with interchangeable trip elements, which can be replaced readily.

6. Single pole circuit breakers for branch circuits must have a frame size of no less than 100 Amperes, and must 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 must 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 must 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 must insure constant calibration and be capable of withstanding excessive short circuit conditions without injury.

9. CONTACTS: must be non-welding under operating conditions and of the silver to silver type.

10. TEMPERATURE RISE: Current carrying parts, except thermal elements, must not rise in temperature in excess of 30 degrees C. while carrying current at the part's rated current and frequency.

11. NUMBERING: Each circuit breaker must be distinctly numbered when installed in a group with other breakers. The calibration of trip element must 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 must be of the type HD of a rating not less than 30 Amperes. Enclosures must be provided with means for locking. For ratings above 60 Amperes terminals must 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. PANEL BOARDS, GENERAL TYPE: The panel boards must be of the automatic circuit breaker type with individual breakers for each circuit, removable without disturbing the other units. Circuit breakers must be in accordance with the requirements outlined under Section 3.5, "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 must be distinctly numbered.

C. BUS BAR CONSTRUCTION AND SUPPORT: Panel Boards must be of the dead front type and must have bus bars and branch circuits designed to suit the system and voltage. Current carrying parts, exclusive of circuit breakers, must be copper and based on a maximum density of 1,000 Amperes per square inch. Bus bars for the main switchboard must be designed for the frame rating of the Service Breaker. Bus bars must run up the center of the panel, unless otherwise indicated, and must have connected thereto the various branch circuits. Unless otherwise specified, bus bars for each panel board must be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers must be used. A neutral bus of at least the same capacity as a live bus bar must be provided for the connection of all neutral conductors. Each terminal must be identified. All current carrying parts, exclusive of circuit breakers, must be of copper with a minimum number of joints. The bus bar structure must be a self-supporting unit, firmly fastened to a ½

inch plastic board, extending the full length and width of assembly which must 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 must separate neutral bus from other parts of panel.

D. CIRCUIT BREAKER ASSEMBLY: The entire circuit breaker and bus bar assembly must be mounted on an adjustable metal base or pan and secured to the back of the panel box. The panel must have edges flanged for rigidity.

E. PANEL MOUNTING: The panel must be centered in the panel box, line up with the door openings, be set level and plumb, and no live parts may be exposed with the door open.

F. PANEL CABINET:

1. PANEL CABINET INSTALLATION: When installed, surface mounted in panel closets must be mounted on Kindorf channel.

2. Where cabinets cannot be set entirely flush due to mustow walls or partitions or where cabinet is extra deep, the protruding sides of cabinet must 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: Where required, nameplates must be made of engraved Lamicoid sheet, or approved equal. Letters and numbers must be engraved white on a black background (except for Firehouse projects which must have white letters on a red background). The Contractor must submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates must be of suitable size and must 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 must 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., must be submitted for approval.

I. DIRECTORIES: A directory must 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 must be typewritten and show the number and name of each circuit, and lighting or equipment supplied. The size of riser feeder must be as indicated on the directory. The dimensions of the directory must be submitted for approval for each size of panel.

J. CONSTRUCTION

1. FINISH: Panel boxes, doors and trim for installation in dry locations, must be zinc coated after fabrication by the hot-dip galvanizing or electroplate process on inside and outside surfaces. In damp locations, panel boards must be enclosed and gasketed NEMA 3R type. Panel boards located outdoors or exposed to the weather must be NEMA 3X type.

2. PAINTING: Panel boxes, doors and trim must receive a coat of approved priming paint and a second coat of approved paint in the field after installation. Paint must be applied to the inside and outside of boxes and on both sides of trim. Panel trims and doors must 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 must apply to all

motors furnished in the Contract.

A. MOTOR DESIGN: All motors must 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 must prevail. Motors must have standard NEMA frames and must have nameplate ratings adequate to meet the specified conditions of operation. Motor performance under variable conditions of voltage and frequency must be within the limits set in NEMA standards, unless modified in the Specifications. Motors must be expressly designed for the hazard duty load, voltage and frequency as specified in the Contract. All motor windings must be copper. All motors intended to operate on a 208 volt system must 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 must be considered as a standard for comparison. The requirements of the NEMA standards for motors and generators must 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 must bear a nameplate lettered "Quiet Motor." Springs and slip rings must be of approved non-ferrous material.

D. BEARINGS:

1. Bearings, unless specified otherwise, must be of the ball or roller type. Motors one (1) horsepower and larger that are equipped with ball roller bearings must also have lubrication of the pressure-relief greasing type. The Contractor furnishing four (4) or more such motors must also furnish, as part of the Contract, a pressure grease gun of rugged design, of approximately ten (10) ounce capacity, complete with necessary adapters. The Contractor must also provide ten (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 must, in addition to having protected fittings easily accessed for oiling, be provided with visible means for determining normal oil level. Lubrication must be positive, automatic and continuous.

E. MOTOR TERMINALS AND BOXES: Each motor must 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 must be furnished of ample size to make and house motor connections. These requirements must be met irrespective of any other standards or practices. Size of cable terminals and conduit terminal box holes must be subject to approval. For motors five (5) horsepower or larger, each terminal must 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 must be of cast iron with threaded hubs and gasketed covers. Cover screws must be of non-corrosive material.

F. MOTOR TEMPERATURE RISES: The motor nameplate temperature rises for the various types of motor enclosures must 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 must meet the requirements of NEMA standards for the size and type of the motors. Tests for heating must 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 must comply in design and safety features with such applicable codes, regulations and rulings, and must 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 must not exceed 1/4 horsepower.

I. MOTORS RATED: ½ horsepower and larger must 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 must 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 must 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 breakers, magnetic starters 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 must furnish as many of these items as 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 must 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 thirty (30) horsepower, must have magnetic across the line starters; motors rated above thirty (30) horsepower must be furnished with reduced voltage (autotransformer type) starter or part winding start with time delay to reduce inrush current. Size of starters must be based on 200V operation.

2. SLIP RING: A.C. motors of the slip-ring type must be furnished with primary across the line starters interlocked with secondary starting and regulating equipment. The interlocking feature must prevent starting of the motor when the secondary controller is off the initial starting point.

3. MAGNETIC: For fractional horsepower motors, magnetic type starters are not required unless the particular method of controlling the driven equipment makes them necessary. Where individual single phase fractional horsepower motors or the sum of fractional horsepower motors controlled by an automatic device are ½ horsepower or more, magnetic starters and circuit breakers must be used. Single phase A.C. motors smaller than ½ horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower. Means for manual operation must be provided.

D. DISCONNECTING BREAKER: All motor starters, unless otherwise specified, must 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 must be contained in the same housing with the starter and must be operable from outside. Means must 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 must 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 must be provided.

G. PANELS: Motor control devices and appliances must be mounted on approved insulating slabs with all wiring and connections made on the back of the slabs.

H. WIRING AND TERMINALS: Wiring connections for currents of one hundred (100) Amperes or less may be made with copper wire or cable with special flameproof insulating coverings. Such wires must be installed in a neat workmanlike manner, flat against the slab, and held in place by clips. Connections must 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 must 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.

I. COPPER BUS: For currents exceeding one hundred (100) Amperes, copper bus must be used in place of wires. The bus must 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 must provide sufficient areas to keep current density at not more than one thousand (1,000) Amperes per square inch.

J. COOPERATION: The Contractor’s subcontractor(s) who furnish electrically operated equipment must 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.

END OF SECTION 01 35 06

(No text on this page)

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 and / or Contaminated 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" must 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, one or more safety representatives, the Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract safety requirements. Additionally, implementing Work safety provisions must 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 29 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. Additionally, Work shall 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, the Contractor must submit to the Resident Engineer copies of shipping manifests, permits from applicable federal, state, or local authorities and disposal facilities, and certificates that the material has been disposed of in accordance with regulations.

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 Office of Environmental and Geotechnical Services (OEGS) through the Resident Engineer.

E. Request for Subcontractor Approval: Any subcontractor performing environmental work must submit required documentation for approval to perform such work as required by DDC's OEGS.

PART II – PRODUCTS

2.1 PERSONNEL PROTECTIVE EQUIPMENT:

A. 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 AND / OR CONTAMINATED 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 and / or contaminated.

B. The Commissioner shall determine whether the Contractor shall perform tests to determine if the material is hazardous and / or contaminated. 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 the 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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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. General Protection
3. Protection during use of heat-generating equipment
4. Photographic Documentation
5. 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” means 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 (NYC) 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 the Work.

B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of the Work, submit for the Commissioner's approval a written description, including evidence of successful use on other comparable projects and provide a program of planned testing to demonstrate the effectiveness of the alternative methods and materials for use on this Project.

C. Qualification Data: Submit 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.

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 GENERAL PROTECTION:

A. Comply with manufacturer's written precautions against harmful effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure that supervisory personnel are present when work begins and throughout 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 must 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 eight (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 the Commissioner immediately of drains or systems that are stopped or blocked. Do not begin Work pertaining to 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 the 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 will 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 must be given for each occurrence and location of work with heat-generating equipment.
2. Where possible, 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 the 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 thirty (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:

A. 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:

A. For all projects involving a Landmark Structure or Site, the Contractor, at the completion of the Work, must 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 must 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 NYC Landmarks Preservation Commission jurisdiction.

END OF SECTION 01 35 91

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes the following:
   1. Definitions
   2. Conflicting Requirements
   3. Quality Assurance
   4. Quality Control
   5. Approval of Materials
   6. Special Inspections (Controlled Inspection)
   7. Inspections by Other City Agencies
   8. Certificates of Approval
   9. Acceptance Tests
   10. 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 Documents.

D. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and quality control procedures that facilitate compliance with the Contract Documents.

E. Provisions of this section do not limit requirements for the Contractor to provide quality assurance and quality 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 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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 must be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE. The Contractor must 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" means 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 must comply with the most stringent requirement. The Contractor must 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 must 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 must 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.

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.

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.

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 must provide quality control services as set forth in the Specifications and those 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 will be borne by the Contractor and will be deemed to be included in the Contract price. The Contractor must 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 must 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 must not employ same entity engaged by the City, unless agreed to in writing by the Commissioner.
4. The Contractor must 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 must submit a certified written report of each quality-control service, in triplicate, to the Commissioner.

6. Testing and inspecting requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
7. The Contractor must 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 must engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results must 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 must 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 must cooperate with entities performing required tests, inspections, and similar quality control services, and must provide reasonable auxiliary services as requested. The Contractor must 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 quality control services with minimal delay and 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 must 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 will be subject to prior written approval by the Commissioner.

1. NOTICE - The Contractor must 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 must 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 must comply with the foregoing before shipping any material.

J. Certificate of Manufacture: When the Commissioner so requires, the Contractor must 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 must 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 the Bureau of Standards and Appeals (B.S.A.), the Materials and Equipment (M.E.A.) acceptance Index, the Bureau of Electrical Control (B.E.C.), etc.

K. Acceptance: When materials or manufactured products comprise of 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 must make the necessary inspections and tests, and the reports thereof must 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 must 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 must 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 must be in accordance with the Specifications and must in no event be less than that necessary to conform to the requirements of the New York City (NYC) 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 must 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 has a plant of ample capacity and have successfully produced similar products. All approvals of materials or equipment that are legally required by the NYC Construction Codes and other governing authorities must be obtained prior to installation.

C. All Materials: Fixtures, fittings, supplies and equipment furnished under the Contract must 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 must 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 must 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 NYC Construction Codes, will 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 will be an entity that is in compliance with the requirements of the NYC Construction Codes. The Contractor must 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 will 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 must notify the relevant Special Inspector in writing at least 72 hours before the commencement of any Work requiring Special Inspection. The Contractor will be responsible for and bear related costs to assure that all construction or work has suitable access and remains exposed for inspection purposes until the required inspection is completed.

4. Inspections and tests performed under “Special Inspection” will 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 the 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 will be responsible for and must 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 must 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 must conform to the requirements of the Specifications and will 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 will give to all concerned, written notice 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 must 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 will 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 must 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 will 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 must 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

(No Text on This Page)

SECTION 01 42 00
REFERENCES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 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 will mean and intend approved, acceptable, or satisfactory to the Commissioner.

C. Design Consultant: “Design Consultant” means 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 will, 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.B.A	Architectural Barriers Act
A.D.A.A.G.	Americans with Disabilities Act (ADA) Accessibility Guidelines
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 Energy Conservation Code (N.Y.C. E.C.C)
	New York City Plumbing Code (N.Y.C. P.C.)
	New York City Building Code (N.Y.C. P.C.)
	New York City Mechanical Code (N.Y.C. M.C.)
	New York City Fuel Gas Code (N.Y.C. F.G.C.)
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.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 must 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 N.Y.C.C.C. adopts a different or earlier dated version of such standard. All references to the ICC A117.1 are only to the 2009 version, whether or not a specific version is specified.

B. APPLICABILITY OF STANDARDS: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect, to the extent referenced, as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

C. CONFLICTING REQUIREMENTS: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantity or quality, comply with the most stringent requirements. Immediately refer uncertainties and requirements that are different but apparently equal, to the Commissioner in writing for a decision before proceeding.

D. STANDARD SPECIFICATIONS - When no reference is made to a code, standard, or specification, the Standard Specifications of the ASTM or the AIEE, as the case may be, shall govern.

E. REFERENCES - Reference to a technical society, organization, or body may be made in the Specifications by abbreviations. Abbreviations and acronyms used in the Specifications and other Contract Documents mean the associated name. The following names are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the Issue Date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AGMA	American Gear Manufacturer Association
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)

AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
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 (Formerly: 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)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CIBSE	Charted 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)
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
FEMA	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
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
HUD	U.S. Department of Housing and Urban Development
IAPMO	International Association of Plumbing and Mechanical Officials
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICC	International Code Council, Inc.
ICEA	Insulated Cable Engineers Association, Inc.

ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NIS	National Institute of Standards and Technology
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)

NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Acquired by ITS - Intertek)
PCI	Precast / Pre-stressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PPS	Power Piping Society
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RMI	Rack Manufacturers Institute
RTI	(Formerly: NTRMA - National Tile Roofing Manufacturers Association) (Now TRI)
SAE	SAE International
SCAQMD	South Coast Air Quality Management District
SCS	Scientific Certification System

SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SGCC	Safety Glazing Certification Council
SHBI	Steel Heating Boiler Institute
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
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

(No Text on This Page)

SECTION 01 50 00
TEMPORARY FACILITIES, SERVICES AND CONTROLS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes the following:
1. Temporary Water System
2. Temporary Sanitary Facilities
3. Temporary Electric Power, Temporary Lighting System, and Site Security Lighting
4. Temporary Heat
5. Dewatering Facilities and Drains
6. Temporary Field Office for Contractor
7. DDC Field Office
8. Material Sheds
9. Temporary Enclosures
10. Temporary Partitions
11. Temporary Fire Protection
12. Work Fence Enclosure
13. Rodent and Insect Control
14. Plant Pest Control Requirements
15. Project Identification Signage
16. Project Construction Sign and Rendering
17. Security Guards/Fire Guards on Site
18. 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.

Term	Definition
Design Consultant	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.
Permanent Enclosure	As determined by the 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.

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 will 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. The Contractor must install, operate, maintain and protect temporary facilities, services, and controls, including without limitation:

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; and
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 must provide the temporary services, facilities and controls set forth in this section during non-regular working hours if the Contract Drawings and/or the Specifications indicate that the Work, or specific components thereof, must be performed during non-regular working hours. In such case, all costs for the provision of temporary services, facilities and controls during non-regular working hours will be deemed included in the total Contract price.

B. The Contractor must provide the temporary services, facilities and controls set forth in this section during non-regular working hours if a change order is issued directing the Contractor to perform the Work, or specific components thereof, during non-regular working hours. In such case, compensation for the provision of temporary services, facilities and controls during non-regular working hours will be provided

through the change order.

1.8 SERVICES BEYOND COMPLETION DATE:

A. The Contractor must 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 Final Approved Punch List Work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor must 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. The Contractor must provide undamaged materials in serviceable condition and suitable for use intended.

B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of fifteen (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 New York City Department of Environmental Protection (DEP).

2.2 EQUIPMENT:

A. The Contractor must provide undamaged equipment in serviceable condition and suitable for use intended.

B. Water Hoses: Heavy-duty abrasive-resistant flexible rubber hoses, one hundred (100) feet (thirty (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 do 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. The Contractor must 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. The Contractor must provide each facility ready for use when needed to avoid delay. The Contractor must 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 must furnish a Temporary Water System as set forth below.

1. Immediately after the Commissioner has issued an order to start the Work, the Contractor must file an application with DEP 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 the Work, the Contractor must file an application with DEP's Bureau of Water Supply and obtain a permit to install the temporary water supply system. The system must be installed and maintained for the use of the Contractor and its subcontractors. A copy of the above-mentioned permit must be filed with the Commissioner. The Contractor must 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 must 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 must take the necessary precautions to prevent the temporary water system from freezing. The Contractor must 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 will 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 will 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 must restore the existing water system to conditions existing before initial use.

2. The Contractor will be responsible for all repairs to the existing water system permitted to be used for temporary water service during construction. The Contractor will 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 New York City Water Board Water and Wastewater Rate Schedule.

C. WASH FACILITIES: The Contractor must 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, including without limitation:

1. Dispose of drainage properly;

2. Supply cleaning compounds appropriate for each condition; and

3. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.

D. DRINKING WATER FACILITIES: The Contractor must provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is available, provide

electric water coolers to maintain dispensed water temperature at forty-five (45) to fifty-five (55) deg. F (7 to 13 deg. C).

3.3 TEMPORARY SANITARY FACILITIES:

A. The Contractor must 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 must provide temporary single-occupant toilet units of the chemical, aerated re-circulation, or combustion type for use by all construction personnel. Units must be properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Quantity of toilet units must comply with the latest Occupational Safety and Health Administration (OSHA) regulations.

2. Toilets: The Contractor must 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 must arrange for the use of existing toilet facilities by all personnel during the execution of the Work. The Contractor will be responsible to clean and maintain facilities in a condition acceptable to the Resident Engineer and, at Substantial Completion , to restore facilities to the condition at the time of initial use.

2. MAINTENANCE - The Contractor must maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs.

3. NUISANCES - The Contractor must not cause any sanitary nuisance to be committed by its employees or the employees of its subcontractors in or about the Work and must 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 must 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 must 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 must be provided as follows: The Contractor must make all necessary arrangements with the public utility company and pay all charges for the Temporary Electric Power system. The Contractor must 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 will make payment directly to the public utility company.

b. APPLICATIONS FOR METER: The Contractor must complete an 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 must 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 must 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 must not be less than one hundred (100) Amperes, 3-phase, 4-wire and must be of sufficient capacity to take care of all demands for all construction operations and must meet all requirements of the New York City Electrical Code.

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 ¼ horsepower may be taken from the existing electric distribution system if the existing system is of adequate capacity for the temporary power load. The Contractor must 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 must 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 must 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 must 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 must 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 will be responsible for all costs due to this change over of service and it must 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 must 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 will be under the supervision of the Contractor, but this will 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 will 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 must provide adequate service for the temporary lighting system, or a minimum of one hundred (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 must 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 must be located near entrance on ground floor.

3. ITEMS: The Temporary Lighting System provided by the Contractor must 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 will 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, as 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, will be borne by the Contractor.

6. PIGTAILS: The Contractor must furnish pigtails with left-hand sockets with locked-type guards and forty (40) feet of rubber covered cable. The Contractor must 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 must 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 must be replaced by the Contractor. All lamps must be compact fluorescent.

8. CIRCUIT PROTECTION: The Contractor must furnish and install Ground Fault Interruption (GFI) protection for the temporary lighting and site security lighting systems.

9. MAINTENANCE OF TEMPORARY LIGHTING SYSTEM:

   a. The Contractor must maintain the Temporary Lighting System in good working order during the scheduled hours established.

   b. The Contractor must 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 must be removed by the Contractor when authorized by the Commissioner.

11. HAND TOOLS: The temporary lighting system must 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 (NEW CONSTRUCTION ONLY):

1. The Contractor must furnish, install and maintain a system of site security lighting, as herein specified, to illuminate the construction Site of the Project, with the system connected to and energized from the Temporary Lighting System. All costs in connection with site security lighting will 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 must direct its subcontractors to cooperate, coordinate and exert every effort to accomplish an early complete installation of the site security lighting system. If, after the system is installed and in operation, a part of the system interferes with the Work of any trade, the Contractor will 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 must consist of flood lighting by pole-mounted guarded sealed-beam units. Floodlight units must be mounted sixteen (16) feet above grade. Floodlights must 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 must be installed in a manner acceptable to the Resident Engineer. The first lighting unit in each circuit must be provided with a photoelectric cell for automatic control. The photoelectric cell must be installed as per manufacturer's recommendations.

4. All necessary poles must be furnished and installed by the Contractor.

5. The site security lighting must be kept illuminated at all times during the hours of darkness. The Contractor must, at its own expense, keep the system in operation and must furnish and install all material necessary to replace all damaged or burned out parts.

6. The Contractor must be on telephone call alert for maintaining the system during the operating period stated above.

7. All materials and equipment furnished under this section will remain the property of the Contractor and must 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 means 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 will include the provision of heat to permit normal operations in such occupied areas.

   a. The provision of Temporary Heat must be in accordance with the temperature requirements set forth in sub-section 3.5 C herein.

   b. The provision of Temporary Heat must 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 must mean that minimum force required for the safe day-to-day operation of the system for the provision of Temporary Heat and must include, without limitation, heating maintenance labor and/or fire watch as required by New York City Fire Department (FDNY) regulations. Operating labor may be required seven (7) days per week and during non-regular 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 must include the provision of domestic hot water at the same temperature as the system which is being replaced. Domestic hot water must 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, is 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 is 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 is 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 must, 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 must 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 will 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 will be responsible for the provision of Temporary Heat and must 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 must notify all its subcontractors and the Resident Engineer at least thirty (30) Days prior to the anticipated date that the building(s) will be enclosed.

2. Commissioner Determination: The Commissioner will 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 will be responsible for the provision of Temporary Heat. The Commissioner's determination with respect to building enclosure will 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 will 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 will 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 ten (10) millimeter plastic, 2) minimum twelve (12) ounce waterproof canvas tarpaulins, or 3) a minimum three-eighths (3/8) inch thickness exterior grade plywood.

d. Temporary covers for openings will be the responsibility of the Contractor and such Work will 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 will be the GREATER of the following: 1) fifty (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, will be the GREATER of the following: 1) sixty-eight (68) degrees Fahrenheit, or 2) the temperature requirement for the particular type of Work set forth in the Contract Documents.

D. DURATION:

1. The Contractor must be required to provide Temporary Heat until Final Acceptance, 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 must 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 must 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 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 CCDs. At a minimum, a full heating season must extend from October 15th to April 15th.

Contract Duration	Full Heating Seasons Required
up to 360 CCD	1 full heating season
360 to 720 CCD	2 full heating seasons
more than 720 CCD	3 full heating seasons

E. METHOD OF TEMPORARY HEAT:

1. The method of temporary heat must be in conformance with the New York City Fire Code and with all applicable laws, rules, and regulations. Prior to implementation, such method must be subject to the written approval of the Commissioner.

2. The method of temporary heat must:

   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 devises or equipment will 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 must 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 must 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, must coordinate its operations in order to insure sufficient and timely performance of all required Work, including Work performed by trade subcontractors. The Contractor must 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 must 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 must provide proper ventilating and drying, open and close the windows and other openings when necessary for the proper execution of the Work and when directed by DDC. The Contractor must 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 must provide all labor and materials to promptly furnish and set all required equipment, 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 must 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, must be made by the Contractor at his/her expense. The starting date for the warranty or guarantee period for such equipment must 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 must 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 must be placed so as to comply with the requirements specified hereinbefore, and must 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, must 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 must 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 must include such Allowance amount in its total Contract price. The Contractor will 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 must 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 must be responsible for the provision of Temporary Heat, as directed by the Commissioner. The City must pay such Contractor for all costs for labor, material, and equipment necessary and required for the same. Payment must be made in accordance with Article 26 of the Contract, except that the cost of fuel must 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 Final Acceptance by the Commissioner of the Work, and that the need for such maintenance is not the fault of the Contractor, the Contractor must provide the required maintenance of the permanent heating system for the period of time directed by the Commissioner. The City will 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 must be made in accordance with Article 26 of the Contract, except that the cost of fuel must 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, must be limited to the direct cost of such fuel. The Contractor will 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 must be responsible for providing the items set forth below and must include all expenses in connection with such items in its total Contract price. The Contractor must provide such items promptly when required and must 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 must 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 the Contractor's Contract.

b. The Contractor must 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 must 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 non-regular working hours for the period of time required by seasonal weather conditions.

J. RELATED PLUMBING WORK:

1. The Contractor must 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 must include all expenses in connection with such items of Work in its total Contract price. The Contractor must provide such items of Work promptly when required and must 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 will be responsible to provide such plumbing equipment to the City in near-perfect condition and must make any repairs required, other than for ordinary wear and tear on the equipment, at the Contractor's expense. The starting date for warranty and/or guarantee period for such plumbing equipment must be the date of Substantial Completion by the City.

3. For Projects requiring the installation of new and/or modified gas service, as well as associated meter installations, the Contractor must 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 must 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 must be maintained at all times in proper working order.

4. Dispose of rainwater in a lawful manner that will not result in flooding the 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 must establish a temporary field office for its own use at the Site during the period of construction, at which readily available copies of all Contract Documents must be kept.

B. The field office must 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: There must be a responsible and competent representative of the Contractor in charge of the office who is duly authorized to receive orders and directions and to put them into effect.

D. Arrangements must be made by the Contractor whereby its representative may be readily available by telephone.

E. All temporary structures must be of substantial construction and neat appearance, and must be painted a uniform gray unless otherwise directed by the Commissioner.

F. CONTRACTOR'S SIGN: The Contractor must post and keep posted on the outside of its field office, office, exterior fence, or wall at Site of Work, a legible sign giving the 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 the event of an emergency at any time.

G. ADVERTISING PRIVILEGES: The City reserves the right to all advertising privileges. The Contractor must 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 must provide and install a lockset for the door to secure the equipment in the room. The Contractor must provide two (2) keys to the Resident Engineer. After completion of the Project the Contractor must 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 must 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 ½”D x 18”W.

b. One (1) 9000 B.T.U air conditioner or as directed by Commissioner. Wiring for the air conditioner must 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 must provide one (1) telephone, where directed and must 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, must remain the property of the Contractor.

5. Computer workstation quantities must 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 must, 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 must be located at the Project Site and must be solely dedicated to the Project. Provision of the DDC Field Office must commence within thirty (30) Days from Notice to Proceed (NTP) and must continue through forty-five (45) Days after Substantial Completion of the required construction at the Project Site. The Contractor must 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 must provide at its own cost and expense a mobile office trailer for use as the DDC Field Office. The Contractor must install and connect all utility services to the trailer within thirty (30) Days from NTP. The trailer must have equipment in compliance with the minimum requirements hereinafter specified. Any permits and fees required for the installation and use of said trailer must be borne by the Contractor. The trailer including furniture and equipment therein, except computer equipment specified in sub-section 3.8D.3 herein, must remain the property of the Contractor.

3. Trailer must be an office-type trailer of the size specified herein, with exterior stairs at entrance. Trailer construction must 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 must 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 FIELD OFFICE	2-1/2"

NOTE: In lieu of painting letters on the 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 must have aluminum insect screens. Provide wire mesh protective guards at all windows.

6. The interior must 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 sixty (60) inches long by thirty-six (36) inches wide with cabinet below and wall type plan rack at least forty-two (42) inches wide.

8. The washroom must 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 must 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 must be furnished.

9. HVAC: The trailer must be equipped with central heating and cooling adequate to maintain a temperature of seventy-two (72) degrees during the heating season and seventy-five (75) degrees during the cooling season when the outside temperature is five (5) degrees F. winter and eighty-nine (89) degrees F. summer.

10. Lighting must be provided via ceiling mounted fluorescent lighting fixtures to a minimum level of fifty (50) foot candles in the open and private office(s) along with sufficient lighting in the washroom. Broken and burned out lamps must be replaced by the Contractor. A minimum of four (4) duplex convenience outlets must be provided in the open office and two (2) each in the private office(s). These outlets must be in addition to special outlet requirements for computer stations, copiers, HVAC unit, etc.

11. Electrical service switch and panel must 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 must conform to the New York City Electrical Code.

12. The following movable equipment must 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 must 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 must 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 must be removed by the Contractor and must be plugged at the mains. All piping must become the property of the Contractor for plumbing Work and must be removed from the Site, all as directed. All repair Work due to these removals must be the responsibility of the Contractor.

    b. ELECTRICAL WORK:

       1) The Contractor must 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 must 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 must 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., must be removed and disposed of as directed.

6) All repair Work due to these removals must be the responsibility of the Contractor.

c. MAINTENANCE

1) The Contractor must 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 must be responsible for providing (1) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (2) 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 must remain solely and completely with the Contractor. The Contractor must 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 must have all services disconnected and capped to the satisfaction of the Commissioner. All repair Work due to these removals must be the responsibility of the Contractor.

d. TELEPHONE SERVICE: The Contractor must 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 must include voice mail. All electronic voicemail messages must be automatically forwarded as email attachments, to allow for the voicemails to be played remotely.

4) A remote bell located on outside of trailer

5) The telephone service must continue until the trailer is removed from the Site.

e. PERMITS: The Contractor must 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 must 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, must 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. Photocopying Machine: Stand-alone, heavy duty, electric, dry-process color photocopying type with color scan and send capability via email, a minimum production rate of seventy (70) pages per minute and an adequate supply of copy paper, toner, etc. The machine must be capable of duplex copying paper sizes of 8-1/2 x 11 inches, 8-1/2 x 14 inches and 11 x 17 inches, and have separate trays for each paper size. It must have a document feeder, collator, stapler, and the capability to reduce/enlarge copies between each paper size. The supply of each size copy paper, toner, etc. must be replenished and the machines must be maintained for the duration of the Contract by the Contractor as required by the Resident Engineer. Make and model can be Minolta, Canon, IBM, Epson, or an approved equivalent, and must be networked to the office computers for printing capability. Copier must remain at job Site until the DDC Field office trailer is removed from the Site.

2. The Contractor must 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 must be new, sealed in manufacturer's original packaging and must have manufacturers' warrantees. All items must remain the property of the City of New York at the completion of the Project.

3. COMPUTER WORKSTATION: The Contractor must provide one (1) complete computer workstation, in quantities specified in sub-section 3.8.B.3, as specified herein:

   a. Hardware/Software Specification:

      1) Computer Equipment: Computers must be provided for all Contracts that have a total Consecutive Calendar Days (CCD) for construction duration, as set forth in Schedule "A", of 180 CCD's or greater. Contracts of lesser duration must not require computers.

      2) Computers furnished by the Contractor for use by City Personnel for the duration of the Contract must be in accordance with the Specific Requirements contained herein, must remain the property of the City of New York at the completion of the Project, and must 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 DDC Assistant Commissioner of Information Technology Services (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 must 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 must be provided with the following:

a) One (1) broad-band internet service account. Wideband Internet connectivity at a minimum throughput of fifteen (15) Mbps download and five (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 must be the DDC Field Office/Project Id (preferably Gmail or Outlook e.g. ABC1234@gmail.com).

b) One (1) 600 DPI HP Color Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper (Legal Size) (Not required if photocopying machine prints in color).

c) All necessary cabling for equipment specified herein

d) Storage Boxes for Blank CD's

e) Printer Table

f) UPS/Surge Suppressor combo

g) Ten (10) USB Thumb (or Flash) Drives – sixteen (16) GB each

5) All computers required for use in the DDC Field Office must be delivered, installed, and

setup in the Field Office by the Contractor.

6) All Computer Hardware must 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 must be provided by the Contractor and must 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 ITS at 718-391-1761.

E. HEAD PROTECTION (HARD HATS):

1. The Contractor must provide a minimum of ten (10) standard protective helmets for the exclusive use of DDC personnel and their visitors. Helmets must be turned over to the Resident Engineer and kept in the DDC Field Office.

2. Upon completion of the Project, the helmets must become the property of the Contractor.

3.9 MATERIAL SHEDS:

A. Material sheds used by the Contractor for the storage of its materials must 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. The Contractor must store combustible materials apart from the facility.

3.10 TEMPORARY ENCLOSURES:

A. The Contractor must 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, the Contractor must insulate temporary enclosures.

3.11 TEMPORARY PARTITIONS:

A. The Contractor must provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied tenant areas from fumes and noise, including, but without limitation:

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 two (2) layers of 3-mil (0.07-mm) polyethylene sheet, extending sheets eighteen (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 forty-eight (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. The Contractor must install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with National Fire Protection Association (NFPA) Standard 241.

B. Smoking in all areas is prohibited.

C. The Contractor must supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

D. The Contractor must 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. The Contractor must 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 must furnish, erect and maintain a wood construction or chain-link fence to the extent shown on the Contract Drawings or required by the Work enclosing the entire Project on all sides. All materials used must be new. Any permit required for the installation and use of said fence and costs must be borne by the Contractor.

B. WOOD FENCE must be seven (7) feet 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 must be secured minimum 1/2 inch thick exterior grade plywood. Posts must be firmly fixed in the ground at least 30" and thoroughly braced. Top edge of fence must be trimmed with a rabbeted edge mould. Provide on the street traffic sides of fence, observation openings as directed.

1. GATES: The Contractor must provide an adequate number of double gates, complete with hardware, located as approved by the Resident Engineer. Double gates must have a total clear opening of 14'-0" with two (2) 7'-0" hinged swinging sections. Hanging posts must be 6" x 6" and must extend high enough to receive and be provided with tension or sag rods for the swinging sections.

2. PAINTING: The fence and gates must 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" must be painted on fence with three (3) inch high letters on twenty-five (25) foot spacing for the entire length of fence on street traffic sides. Signs must be stenciled five (5) feet above the sidewalk.

C. CHAIN-LINK FENCING must be minimum two (2) inch thick, galvanized steel, chain-link fabric fencing; eight (8) feet high with galvanized steel pipe posts; minimum 2-3/8-inch Outside Diameter (OD) line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Fence must be accurately aligned and plumb, adequately braced and complete with gates, locks and hardware as required. Under no condition must fencing be attached or anchored to existing construction or trees.

D. ADDITIONAL REQUIREMENTS:

1. It must 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 must 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 must 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 must be removed.

3.14 RODENT AND INSECT CONTROL:

A. DESCRIPTION: The Contractor must 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 Site requiring such special attention.

B. MATERIALS:

1. All materials must be approved by the New York State Department of Environmental Conservation (DEC) 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 must 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 must 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 must 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 must be placed during the period of construction and any consumed or decomposed bait must be replenished as directed.

3. At least one (1) 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, must be placed at locations that do not allow access to pets, human beings, children and other non-target species, particularly wildlife (for example-birds) in the Project area.

4. The Contractor must be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper-proof bait stations. The Contractor must also be responsible for posting and maintaining signs announcing the baiting of each particular location.

5. The Contractor must be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the Project area.

6. It is anticipated that public complaints will be addressed to the Commissioner. The Contractor, where directed by the Commissioner, must 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.

7. Emergency service during the regular workday hours (Monday through Friday) must be rendered within twenty-four (24) hours, if requested by the Commissioner, at no additional cost to the City.

F. EDUCATION & NOTICES:

1. The Contractor must post notices on all Construction Bulletin Boards advising workers, employees, and residents to call the DDC Field Office to report any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the Project area. The Contractor must provide and distribute literature pertaining to Integrated Pest Management (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 must 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 must keep a record of all rodent and waterbug infestation surveys conducted and make available, upon request, to the Commissioner. The findings of each survey must include, but not be limited to, recommended IPM techniques, like baiting, trapping, proofing, etc., proposed for rodent and waterbug pest control.

2. The Contractor must 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, must 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 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 subcontractor performing tree Work has entered into a compliance agreement with NYSDAM. The terms of said compliance agreement must be strictly complied with. Any host material so removed must be delivered to a facility approved by NYSDAM. For the purpose of this Contract, host material must be ALL species of trees.

2. Any host material that is infested with the ALB 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 must submit to the Commissioner a copy of a valid ALB compliance agreement entered into with NYSDAM and the Contractor or its subcontractor performing tree Work. If any host material is transported from the quarantine area the Contractor must 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, must be defined as all five boroughs of the City of New York. In addition, prior to the start of any tree Work, the Contractor must contact the NYC Department of Parks & Recreation's (DPR) 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 must retain a Certified Arborist, as defined by DPR regulations, to provide the services described below.

1. Surveys and Reports: The Certified Arborist must, 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; and (3) evaluation of the general health and condition of any infected plant material.

2. Frequency of Reports: The Certified Arborist must 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 twenty-four (24) months in duration, the Certified Arborist must conduct a survey and prepare a report at the midpoint of construction. Copies of each plant material assessment report must 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 must 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 fifty (50) feet of the project's Contract Limit Lines (CLLs) or Property Lines (PLs).

   b. Any part of the tree or shrub stands within fifty (50) 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 fifty (50) foot inclusionary perimeter as outlined above.

4. Tree Protection Plan: The Certified Arborist must prepare, and the Contractor must 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 DPR jurisdiction as determined by the NYC Department of Transportation, and (4) all trees that are located in proximity to the Project Site, as defined above. The Tree Protection Plan must comply with the 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 must be submitted to the Resident Engineer prior to the commencement of construction. Implementation of the Tree Protection Plan for street trees and trees under DPR jurisdiction must 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 fifty (50) feet of the intersection of the Project's Site's PL with the street frontage property line.

C. No Separate Payment: No separate payment must 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 must be deemed included in the Contractor's bid for the Project.

3.16 PROJECT IDENTIFICATION SIGNAGE:

A. The Contractor must 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 must 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 must 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 must produce and install one (1) Project sign which must be posted and maintained upon the Project Site at a place and in a position directed by the Commissioner. The Contractor must protect the sign from damage during the continuance of Work under the Contract and must 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 must 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 must provide all materials required for the production of the sign as specified herein. Workmanship must be of the best quality, free from defects and must be produced in a timely manner.

3. Schedule: Upon Project mobilization, the Contractor must commence production and installation of the sign.

4. Removal: At the completion of all Work under the Contract, the Contractor must remove and dispose of the Project sign away from the Site.

5. Sign construction:

   a. Frame: The frame must be from quality dressed 2”x2” pine, fire retardant, pressure treated lumber, that surrounds the inside back edge of the sign. The sign must have one (1) intermediate vertical and two (2) diagonal supports, glued and screwed for rigidity. Frame must be painted white with two (2) coats of exterior enamel paint, prior to mounting of sign panel.

   b. Edging: U-shaped, twenty-two (22) gauge aluminum edging, with a white enameled finish to match sign background, must run around entire edging of sign panel and frame. Corners must be mitered for a tight fit. Channel dimensions must 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 must be constructed in one (1) piece of fourteen (14) gauge (.0785") 6061-T6 aluminum. This panel must 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 ½" below edge of panel and 8" on center. The U-shaped aluminum channel must 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 must insert the Project name and names and titles of personnel (three (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 must 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 must 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-SETION 3.17 B

B. PROJECT RENDERING:

1. Responsibility: In addition to the Project sign, the Contractor must 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 must 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 must 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 must provide a 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 must 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 must be no less than one (1) security guard on duty every day, including Saturdays, Sunday and holidays, twenty-four (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 must not apply after the finishing painting of the plaster Work is commenced; thereafter, not less than one (1) security guard must be on duty continuously, twenty-four (24) hours a day.

2. Every security guard must be required to hold a "Certificate of Fitness" issued by FDNY. Every security guard must, 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 must be replaced by the Contractor upon the written demand of the Commissioner.

4. Each security guard furnished by the Contractor must 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 must 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 must 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 must 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 must 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, must 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, must be replaced by the Contractor at no additional cost to the City.

END OF SECTION 01 50 00

SECTION 01 54 11
TEMPORARY ELEVATORS AND HOISTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes the following:
   1. Temporary Use, Operation and Maintenance of Elevators during Construction
      a. For new buildings up to and including fifteen (15) stories
      b. For new buildings over fifteen (15) stories
      c. For existing buildings
   2. Temporary Construction Hoists and Hoistways (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 FIFTEEN (15) STORIES:

A. INSTALLATION: The Contractor must 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, representatives of DDC, and other governmental agencies having jurisdiction of Work at the Project. The Contractor must 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 must 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 must 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 must 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 and 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 must include all costs in connection with the temporary elevator, including without limitation, the costs specified herein.

D. COMMENCEMENT OF SERVICE: The Contractor must begin to provide temporary elevator service using the selected main passenger elevator no later than eight (8) weeks (forty (40) 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 (fifteen (15) Days) after the machine room roof slab has been placed, or that portion of it surrounding the elevator shaft, the following Work must be completed:

1. The shaft must be completely enclosed by either a permanent or temporary enclosure meeting all building code requirements.
2. The machine room must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided to enable the safe and practicable hoisting of the elevator machinery for installation.
3. On all floors at the shaft way entrances to the elevator, the Contractor must install solid substantial frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.
4. The Contractor must furnish and install solid, substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at the top of car and a substantial temporary door or gate on the front of the elevator entrance.

E. ELECTRICAL INSTALLATION: The Contractor, no later than twenty (20) Days after the machine room roof slab or that portion of it surrounding the elevator has been placed, must furnish and install temporary or permanent power and light feeders as required for the elevator used for temporary service. Additionally, the Contractor must connect 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 the shaft way and for the car control and signal traveling cables. The Contractor must make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.

F. REMOVAL: As directed by the Commissioner and when elevators for permanent use have been installed and are in proper condition for service, the Contractor must 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 must 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 must furnish and install new governor and compensating ropes, traveling cables, controller parts, etc. The car and counterweight safeties must 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 must be installed and payment will be made in accordance with Article 26 of the Contract.

H. REPLACEMENT: The Contractor must 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, except for the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators must be thoroughly cleaned. Where lubricated rails are used they must 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., must be borne by the Contractor except for the replacement of hoisting ropes.

I. LIMITATIONS ON USE: The temporary elevator must not be used during its operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its subcontractors, 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 must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must 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 one hundred dollars ($100) per Day for each Day it fails to provide the temporary elevator service described in this section beginning with the forty-first (41st) 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 FIFTEEN (15) STORIES:

A. INSTALLATION: The Contractor must 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, representatives of DDC, and other governmental agencies having jurisdiction of work at the Project. The Contractor must 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 must 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 must not be operated simultaneously.

B. RESPONSIBILITY: The Contractor must 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 must 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 must include all costs in connection with the temporary elevators, including without limitation, the costs specified herein.

D. LOW RISE ELEVATOR: The Contractor must begin to provide temporary elevator service using one (1) selected main passenger elevator no later than six (6) weeks (thirty (30) Days) after the twelfth (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) Days), after the twelfth (12th) floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped, the following Work must have been completed:

1. The shaft must be completely enclosed up to the twelfth (12th) floor by either the permanent or a temporary enclosure meeting the requirements of the law.

2. A temporary machine room enclosure must be provided at the eleventh (11th) floor and must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.

3. The Contractor must install on all floors up to and including the ninth (9th) floor at the shaft entrances to the elevator, solid substantial wood frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.

4. The Contractor must furnish and install solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, except that the portion of the front at the elevator entrance must be provided with a substantial temporary door or gate.

E. ELECTRICAL INSTALLATION: The Contractor must, no later than ten (10) Days after the twelfth (12th) floor slab or that portion of it surrounding the elevator has been poured and stripped, furnish and install temporary or permanent power and light feeders as required for the elevator used for temporary service. The Contractor must connect such feeders to the terminals on the starter panels or controllers in the temporary machine room to the low voltage transformers, car light outlets in the center of the shaftway, and for the car control and signal traveling cables. The Contractor must 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 must begin to provide temporary elevator service to all floors using a selected main passenger elevator no later than eight (8) weeks (forty (40) 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 (fifteen (15) Days) after the machine room roof slab, or that portion of it surrounding the elevator shaft has been placed, the following Work must have been completed:

1. The shaft must be completely enclosed by either the permanent or temporary enclosure, meeting the

requirements of the law.

2. The machine room must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided to enable the safe and practicable hoisting of the elevator machinery for installation.

3. The Contractor must install on all floors at the shaft way entrances to the elevator solid substantial frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.

4. The Contractor must furnish and install solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, except that the portion of the front at the elevator entrance must be provided with a substantial temporary door or gate.

G. ELECTRICAL INSTALLATION: The Contractor must, not later than twenty (20) Days after the machine room slab or that portion of it surrounding the elevator shaft has been placed, furnish and install temporary or permanent power and light feeders as required for the high-rise elevator to be used for temporary service. The Contractor must connect 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 must 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 must be shut down.

I. REMOVAL: When directed by the Commissioner and one (1) or more elevators for permanent use have been installed and are in condition for service, the Contractor must remove the temporary enclosures, 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 must 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 must furnish and install new governor and compensating ropes, new traveling cables, new controller parts, etc. The car and counterweight safeties must 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 must be installed and payment will be made in accordance with Article 26 of the Contract.

K. REPLACEMENT: The Contractor must 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, except the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheaves spaces used for temporary operation of elevators must be thoroughly cleaned down. Where lubricated rails are used they must 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., must be borne by the Contractor except for the replacement of hoisting ropes.

L. LIMITATIONS ON USE: The temporary elevators must not be used during their operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its subcontractors, 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 must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must 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 one hundred dollars ($100) per Day for each Day it fails to provide the temporary elevator service described in this Section beginning with the thirty-first (31st) Day after the twelfth (12th) floor slab, or that portion of the twelfth (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, 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 must 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 must 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 must 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, except the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators must be thoroughly cleaned down. Where lubricated rails are used they must 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., must 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 must be installed and payment will be made in accordance with Article 26 of the Contract.

D. LIMITATIONS ON USE: The temporary elevator must not be used during its operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its subcontractors, 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 must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must 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 one hundred dollars ($100) per Day for each Day it fails to provide elevator services described in this section beginning with fifteen (15) Days from Notice to Proceed (NTP). 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 must 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 must be constructed at such locations as to 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 must be located a sufficient distance from the exterior walls and be so protected as to prevent any of the permanent Work from being damaged, stained or marred.

C. ELEVATOR SHAFT: Wherever possible, one or more of the permanent elevator shafts may be used as temporary hoistways, providing such use complies with the requirements of the Building Code of the City of New York, has been approved by the Commissioner, and does not interfere with the progress of the Work.

D. PROTECTION FOR INTERIOR HOISTS: All interior material hoistways must be enclosed on each floor and must be adequately protected with appropriate safety guards. In no event must the protection be less than that required by law.

END OF SECTION 01 54 11

(No Text on This Page)

SECTION 01 54 23
TEMPORARY SCAFFOLDING AND PLATFORMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. SECTION 01 35 26 SAFETY REQUIREMENTS PROCEDURES.

C. The Contractor must 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 site(s), 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 must comply with requirements of Chapter 33 (Safeguards During Construction or Demolition) of the New York City (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 must designate and employ a Jobsite Safety Coordinator, who must be a competent person, who must 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 (DOB) supported scaffold certificate of completion. An alternate must also be designated in the event that the Jobsite Safety Coordinator is absent. The Jobsite Safety Coordinator must:

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; and,
12. Keep a log of significant actions and events connected with the scaffolding.

B. The Contractor will be responsible for erecting, maintaining, and dismantling the scaffolding and/or sidewalk shed in conformance with requirements of the NYC Building Code, OSHA and the Contract Documents, including the Specifications. The Contractor must also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.

C. The Contractor must 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 will be responsible to ensure the following: (1) that the installation design is in compliance with requirements of the NYC 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 DOB-approved training provider are mandatory. These users have a duty to become familiar with the NYC 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 must prepare, obtain, and submit the following to the Resident Engineer:

A. NYC DOB 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; and,
16. All sidewalk sheds must 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 must be issued for each inspection and pull-test below, and must be logged and maintained on site by the Jobsite Safety Coordinator for the duration of the Project.

B. Pull testing will be required during design, and during or post erection, where anchorage is made into masonry. The Scaffold Engineer must specify the test method, proof load, and the number of trials.

C. Sidewalk sheds must be inspected after initial installation, major modification, or damage and thence every three months. Inspections must be by a Scaffold Engineer for custom sheds and by a Competent Person employed by the Contractor for standard sheds.

D. Scaffolds must be inspected by the Scaffold Engineer during erection, post-erection, and prior to use and thence every three (3) months. The Scaffold Engineer must repeat inspections after major alteration/ modification, and/or damage.

E. A Qualified Person assigned by the Contractor must 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 must 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 must 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 must always be available on-site.

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 must 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 must 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

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SECTION 01 73 00
EXECUTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes 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
24. Payment for Allowances

1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
C. Section 01 33 00 SUBMITTAL PROCEDURES
D. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL
E. Section 01 77 00 CLOSEOUT PROCEDURES
F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

Term	Definition
Design Consultant	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 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 DELIVERY OF MATERIALS:

A. Material Orders: The Contractor must furnish to the Commissioner a copy of each material order, indicating date of order and quantity of material, and must also notify the Commissioner when materials have been delivered to the Site and in what quantities.

B. Ample Quantities: The Contractor must deliver materials in ample quantities to ensure 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 must be delivered with unbroken seals and must bear proper labels.

D. Deliveries: The Contractor must coordinate deliveries in order to avoid delaying or impeding the progress of the Work.

E. Handling: The Contractor must 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 of the Standard Construction Contract, and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.

G. Stacking: All materials must be properly stacked in convenient places adjacent to the Site, or where directed, and protected in a satisfactory manner. Stacked materials must be arranged so as to not interfere with visibility of traffic control devices.

H. Overloading: If the Commissioner permits the storage of materials in any part of the Project area, they must 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 must 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 must devote its time and personal attention to the Work and must employ and retain at the Project Site, from commencement until Final Acceptance, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent must be registered with the New York City Department of Buildings (DOB) in compliance with the Construction Superintendent Rule of the City of New York, be competent and capable of maintaining proper supervision and care of the Work, and be acceptable to the Commissioner. The Construction Superintendent, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any subcontractor, must see that the instructions of the Commissioner are carried out.

B. Replacement: The Contractor's Construction Superintendent on the job must 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 by the Contractor in connection with the performance of the Work.

B. Responsibility: The Contractor must establish all other lines and elevations required for the Work and must be solely responsible for the accuracy thereof.

C. Safeguard All Points: The Contractor must safeguard all points, stakes, grade marks and bench marks made or established by the Contractor on the Work. The Contractor must re-establish same if disturbed, and bear the entire expense of rectifying the Work if improperly installed due to not maintaining, protecting or removing without authorization from the Commissioner such established points, stakes, or marks.

D. City Monuments and Markers: No Work must be performed near City monuments or markers so as to disturb them until the said monuments or markers have been referenced or reset or otherwise disposed of by the relevant Agency or party who installed them.

E. Foundations: The Contractor must 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 must 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 must establish the permanent lines of exterior walls. The Contractor must promptly furnish 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 must 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, must be a land Surveyor licensed in the State of New York and must be subject to the approval of the Commissioner. The Surveyor must not be a regular employee of the Contractor, nor must the Surveyor have any interest in the Contract. The Surveyor's certification must represent an independent and disinterested verification of all layout. The Surveyor must report to the Department of Design and Construction's (DDC) 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 must 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 Contract Drawings must be noted on the final certificate and must include 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 must submit to DDC for submission to DOB a final Survey by the licensed Surveyor showing the location of the new Work, before completion of the Work. This Survey must 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 Work on the plan, together with the location and boundaries of the lot or plot upon which the Work 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 must 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 DDC 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 were actually taken from the site at the times, places, and in the manner indicated on the boring drawings. The samples are available for inspection in DDC’s Subsurface Exploration Unit.

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. 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 the Work, the Contractor must investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, the Contractor must 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, the Contractor must investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, the Contractor must verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, water-service piping, and underground electrical services.
2. The Contractor must furnish location data for Work related to the Project that must be performed by public utilities serving the Project Site.

C. Acceptance of Conditions: Examine all existing substrates, areas, and conditions, with the subcontractor responsible for installation or application, for compliance with requirements for installation tolerances and other conditions affecting performance. The Contractor must record observations of these examinations:

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.

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 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 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 must comply with all federal, state and local asbestos regulations affecting the work for this Contract.

B. Contractor Responsibility: The Contractor must comply with all federal, state and local environmental regulations, including without limitation, United States Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA) regulations, which require the Contractor to assess if lead-based paint will be disturbed during the Work in order to protect the Contractor's workers and the building occupants from migration of lead dust into the air. The Contractor must comply with all federal, state and local environmental waste disposal regulations 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 must verify all dimensions and conditions on the Site so that all Work will properly join the existing conditions.

B. Before commencing the Work, the Contractor must examine all adjoining materials 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 must report to the Commissioner any condition that will prevent it from performing Work that conforms to the required Specifications.

C. Existing Utility Information: The Contractor must 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. Additionally, the Contractor must coordinate with authorities having jurisdiction.

D. Space Requirements: The Contractor must verify space requirements and dimensions of items shown diagrammatically on the Contract Drawings.

3.8 DEFERRED CONSTRUCTION:

A. In order to permit the installation of any item or items of equipment required to be furnished and installed within the time allowed for completing the Work of the Contract, the Contractor must defer construction Work limited to adequate areas as approved and certified by the Commissioner.

B. The Contractor must 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: The Contractor must 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 on the Contract Drawings.

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 must 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 must be responsible for all costs in connection with such regulatory compliance, unless otherwise specified in the Contract.

3.11 TRANSPORTATION:

A. Availability: The Contractor must determine the availability of transportation facilities and dockage for the use of its employees, equipment, and materials, 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 must 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 must 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 must 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: To avoid delay, in the event that timely delivery of sleeves and other materials cannot be made, 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 must fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in must 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 must submit to 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 must be stamped and returned if approved and/or comments will be transmitted. The Contractor must 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 must not predicate its layout Work on unapproved sketches.

3.14 CUTTING AND PATCHING:

A. Responsibility: The Contractor must do all cutting, patching, and restoration required by its Work, unless otherwise particularly specified in the Specifications.

B. Restore Work: The Contractor must restore any Work damaged during the performance of the Work.

C. Competent Workers: All restoration Work must 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 must 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 the Commissioner's opinion, reduce the building's aesthetic qualities. The Contractor must remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

G. Existing Warranties: The Contractor must 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 must 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 must be reused, salvaged, or recycled. Waste disposal in landfills must be minimized. Comply with requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

B. Rubbish: Rubbish must not be thrown from the windows or other parts of the Project. Mason's rubbish, dirt and other dust-producing material must be wetted down periodically.

C. Location: The Contractor must clean the Project Site and Work area daily, sweep up, and deposit at a location designated on each floor, all of its rubbish, debris, and waste materials as it accumulates or more frequently when directed by the Resident Engineer. Wood crating must 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 seven (7) Days during normal weather or three (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: Since the Contractor is responsible for the removal of all rubbish, etc., from the Site, the Contractor must employ and keep engaged for this purpose an adequate number of laborers.

E. Surplus Materials: The Contractor must 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 must 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 must thoroughly clean all equipment and materials furnished and installed, and must 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 the 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 must take over and maintain the Project Site, after order to start Work.

B. The Contractor must 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 must, 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 must 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 must 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 must take over and maintain all Project areas, after order to start Work.

B. Until the date of Final Acceptance, the Contractor must be responsible for the safety of all Project areas, including water, gas, electric and other mains and pipes and conduits and must, 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 must be kept clear at all times, maintained, and if damaged, repaired to serviceable conditions with materials to match existing.

D. The Contractor must 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, must comply with DOB Bureau of Electrical Control requirements.

3.23 OBSTRUCTIONS IN DRAINAGE LINES:

A. The Contractor must 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 must be kept clear of any and all debris. Any stoppage must be repaired immediately at the expense of the Contractor.

3.24 PAYMENT OF ALLOWANCES:

A. Unless otherwise called for in the Specifications, the following requirements apply to the payment and execution of Allowances established for the Contractor:

1. Allowances are to be utilized when ordered and authorized in writing by the Commissioner.

2. The Contractor will be paid on a time and materials (T&M) basis under the Allowance. Labor will be paid based on the Contractor's Certified Payrolls, all other expenses will be paid on an invoice basis. A markup of twelve percent (12%) for overhead and ten percent (10%) for profit will be allowed, except that no markup will be allowed on Payroll Taxes or on the premium portion of overtime pay or on sales and personal property taxes.

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 CONTRACT RECORD DOCUMENTS
G. 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 LEED Rating System, as specified in Section 01 81 13.03 "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS" or Section 01 81 13.04 "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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.

Term	**Definition**
Alternative Daily Cover (ADC)	Material other than earthen material placed on the surface of the active face of a municipal solid Waste landfill at the end of each Work Day to control vectors, fires, odors, blowing litter and scavenging.
Design Consultant	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.
Clean	Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.
Construction and Demolition (C&D) 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.
Diversion from Landfill	Material removal from the Site for Recycling, Reuse or Salvage that might otherwise be sent to a landfill.
Recyclable	The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.
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.
Return	To give back Reusable items or unused products to vendors.
Reuse	To reuse excess or discarded construction material in some manner on the Project Site.
Salvage	To remove a Waste material from the Project Site for resale or reuse.
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.
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.
Waste-to-Energy	The conversion of non-Recyclable Waste materials into usable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolization, anaerobic digestion and landfill gas recovery.

1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:

A. The City of New York has established that this Project must generate the least amount of Waste possible and employ processes that ensure the generation of as little Waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors.

B. Of the Waste that is generated during demolition, as many of the Waste materials as economically feasible, and as stated here, must be Reused, Salvaged, or Recycled. Waste disposal in landfills must 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 Leadership in Energy and Environmental Design (LEED) 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. With the exception of LEED v4 projects with demolition ADC Waste, a minimum of seventy-five percent (75%) of total Project demolition and construction Waste (by weight) must be diverted from landfill. LEED v4 projects with demolition ADC Waste must divert a minimum of fifty percent (50%) of total Project demolition and construction Waste (by weight) 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; and
11. Reuse items indicated on the Contract Drawings and/or elsewhere in the Specification.

E. All fluorescent lamps, High Intensity Discharge lamps and mercury-containing thermostats removed from the Site must be Recycled. Do not use bulb crusher on Site.

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.

G. Land-clearing debris is not considered construction, demolition or renovation Waste and is not to be included as contribution to Waste diversion.

H. A minimum of five (5) material types, both structural and nonstructural, are to be identified in the Construction Waste Management Plan for diversion.

I. For LEED v4 projects, material to be used as ADC does not qualify as material diverted from disposal.

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); there are also outlets that will pick up, and in some cases, buy Recyclable materials. Examples of information resources are as follows:

1. DDC's Sustainable Design website: https://www1.nyc.gov/site/ddc/about/sustainable-design.page. A standard Construction and Demolition (C&D) Waste Management Log form is included at the end of this section.
2. Web Resources (information only; no warranty or endorsement is implied):
    a. www.wastematch.org – Website of New York Waste Match, a materials exchange database and service.
    b. www.bignyc.org – Website of Build It Green NYC, a non-profit outlet for Salvaged and surplus building materials.
    c. www.usgbc.org – Website of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D Waste Recycling.
    d. http://www.epa.gov/epawaste/index.htm – Website of the U.S. Environmental Protection Agency (EPA) that discusses C&D Waste issues, and links to other resources.
3. Waste-to-Energy Facilities that need to comply with European Standard (EN) for Waste management and emissions into air, soil, surface water and groundwater:
    a. www.ec.europa.eu/environment/waste/framework/index.htm – European Commission Waste Framework Directive 2008/98/EC.
    b. http://www.europa.eu/legislation_summaries/environment/waste_management – European Commission Waste Incineration Directive 2000/76/EC.
    c. www.cen.eu/cen/Products – EN Standards 303-1, 303-2, 303-3, 303-4, 303-5, 303-6, 303-7.

1.7 SUBMITTALS:

A. The Contractor must refer to Section 01 33 00 SUBMITTAL PROCEDURES for submittal requirements.

B. The Contractor must be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's subcontractors must assist in the development of that Plan, and collect and deposit their Waste and Recyclable materials in accordance with the approved Plan.

C. Draft Waste Management Plan: Within fifteen (15) Days after receipt of the Notice to Proceed (NTP), or prior to any Waste removal, whichever occurs sooner, the Contractor must submit to the Commissioner a Draft Waste Management Plan. Include separate sections for C&D Waste. The Plan must 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 on-Site and/or off-Site sorting methods for all materials to be removed from Site.
3. If mixed C&D Waste is to be sorted off-Site, provide a letter from the processor stating the average percentage of mixed C&D 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. Material handling procedures: Specify whether materials must be separated or commingled and describe the planned diversion strategies. Describe expected amount of each material type, where materials must be taken and how the Recycling facility must process the material. Provide 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: Regular meetings must be held monthly, or as directed by the Commissioner, and the Contractor must provide a description of these meetings to address Waste management.
8. Sample spreadsheet and description of how the implementation of the Plan will be documented and submitted on a monthly basis.

D. Final Waste Management Plan: Within fifteen (15) Days of Commissioner's approval of the Draft Waste Management Plan, the Contractor must submit a Final Waste Management Plan.

E. Progress Reports: The Contractor must submit a monthly 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 Project Site Waste. A DDC C&D Waste Management Log form is 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 tons/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; and
   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 measurement 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 must 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 must save such original documents for the life of the Project plus seven (7) years.

F. LEED Submittal: For LEED-designated projects, submit final LEED construction Waste report 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. Waste report must include:

1. At least four (4) material streams for diverted materials;
2. Documentation of Recycling rates for commingled facilities; and
3. For Waste-to-Energy strategy, submit documentation of facility adherence to relevant EN standards, and justification for the strategy.

G. Refrigerant Recovery: Where refrigerant is recovered, submit statement of refrigerant recovery, which must include:

1. Name, address, qualification data and signature of the refrigerant recovery technician responsible for recovering refrigerant;
2. Statement that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations; and
3. Date refrigerant was recovered.

1.8 QUALITY ASSURANCE:

A. The Contractor must designate a Construction Waste Management Representative to ensure compliance with this section. The Representative must be present at the Project Site full-time and 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 must be discussed at the following meetings:

1. Pre-demolition kick-off meeting;
2. Pre-construction kick-off meeting;
3. Regular job-site meetings; and
4. Contractor toolbox meetings.

E. For LEED v4 projects, Waste-to-Energy Facilities: Comply with EN standards for Waste management and emissions into air, soil, surface water, and groundwater.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 WASTE PLAN IMPLEMENTATION:

A. Prior to the demolition and construction start, the Contractor must implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative. The Representative 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 must 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 must oversee and document the results of the Plan. Monies received for Salvaged materials must remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications or indicated on the Contract Drawings as belonging to others.

C. Responsibilities of subcontractors: Each subcontractor must be responsible for collecting its Waste, non-Returned surplus materials and rubbish, in accordance with the Waste Management Plan.

D. Distribution: The Contractor must distribute copies of the Waste Management Plan to each subcontractor, Resident Engineer, Construction Manager, and the Commissioner.

E. Instruction: The Contractor must provide on-Site instruction of proper Waste management procedures to be used by all parties at appropriate stages of the Project.

F. Procedures: Conduct Waste management operations to ensure minimum interference with Site vegetation, roads, streets, walkways and other adjacent, occupied, and used facilities. The waste management operations include, but are not limited to:

1. Collect commingled 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 seventy-five percent (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

Department of Design and Construction

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG

Project Name: _____
Project I.D.: _____

Contractor: _____
Prepared by: _____
For Month: _____

Haul Date	Ticket #	Hauling Company	*Material Category[2]	Material Quantity (tons or cubic yards)[1]				*Material Recipient
				*Total Weight	Excluded Material[3]	*Diverted Material[4]	*Landfilled Material	
				*Total		*Diverted	*Landfilled	
			Monthly Totals					
			% Diverted this Month*					
			Cumulative Totals					
			% Diverted to Date					

Notes:

1. Volume (cubic yards) may be used instead of weight if used for ALL amounts and ALL materials.
2. Includes concrete; bricks; concrete masonry units (CMU); asphalt; metals; clean dimensional wood; carpet and pad; drywall; ceiling tiles; cardboard, paper, and packaging; and any other Reuse items indicated on the Contract Drawings and/or elsewhere in the Specifications.
3. Excluded material includes soil or land clearing debris and for LEED v4 projects, Alternative Daily Cover (ADC) such as screen fines and 6” minus.
4. Diverted material includes Recycled and Reused material diverted from landfill. Recycled material is reprocessed into new products. Reused material is reclaimed, Salvaged or otherwise used in its original form, either on-site or off-site.

* These items must be listed in order to receive LEED credit.

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes administrative and 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 (USGBC) Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13.03 “SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS” or Section 01 81 13.04 “SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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 must be in accordance with ASHRAE and USGBC LEED- NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor must 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.

Term	Definition
Design Consultant	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 SUBSTANTIAL COMPLETION:

A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, the Contractor must 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. The Contractor must 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 must 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 Approved 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 must request re-inspection when the Work identified in previous inspections as incomplete are completed or corrected.
2 Results of completed inspection will form the basis of the requirements for Final Acceptance.

1.6 FINAL ACCEPTANCE:

A. Preliminary Procedures: Before requesting final inspection for Final Acceptance of the Work, the Contractor must 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 Contract 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 13.03, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS; and

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 must state that each item has been completed or otherwise resolved for acceptance, and must 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 must 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 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.

1.7 WARRANTIES:

A. Schedule B of the Addendum lists the items of materials and/or equipment for which manufacturer warranties are required. For each item of material and/or equipment listed in Schedule B, the Contractor must obtain a written warranty from the manufacturer. Such warranty must 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 must 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 fifteen (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 the entire Project or for a portion of the 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 all applicable 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 must complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Contractor must 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.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

SECTION 01 77 00

ATTACHMENT 'A'

The following list is a general sample of Substantial Completion requirements, including, but not limited to:

1. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the Project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable governing authorities, including, but not limited to, the New York City Department of Buildings (DOB); Department of Transportation (DOT); Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation includes, but is 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; and
    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 Contract Documents as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, including but not limited to:
    a. Approved documentation from governing authorities;
    b. As-built record drawings and Specifications; product data; operation and maintenance manuals;
    c. Final Completion construction photographs;
    d. Damage or settlement surveys;
    e. Final property surveys; and
    f. Similar final record information.
    g. 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 Construction & Demolition (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 13.03, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 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 FOR MEP SYSTEMS and/ or Section 01 91 15, BUILDING ENCLOSURE COMMISSIONNING REQUIREMENTS.
15. Complete final cleaning requirements, including touchup painting.
16. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

SECTION 01 78 39
CONTRACT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes administrative and general procedural requirements for Contract Record Documents, including:

1. Contract Record Drawings
2. Record Specifications, Addenda and Change Orders
3. Record Product Data
4. Record Sample Submittal
5. Construction Record Photographs
6. Operating and Maintenance Manuals
7. Final Site Survey
8. Demonstration and Orientation DVD
9. Guarantees and Warranties
10. Waste Disposal Documentation
11. LEED Materials and Matrix
12. Miscellaneous Record Submittals

B. The Department of Design and Construction (DDC), at the start of construction (kick-off meeting), will furnish to the Contractor, at no cost, a complete set of Contract Record 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 must maintain, during the progress of the Work, an accurate record of the Work as actually installed, on Contract Record Drawings Mylars in ink (reproducible). Store Contract 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 Contract 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.

1. 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 must also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

2. For projects designated to achieve a Leadership in Energy and Environmental Design (LEED) rating, the Contractor will 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 will 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.

Term	**Definition**
Commissioning Authority / Commissioning Agent (CxA)	The entity responsible for providing commissioning services for the Project. The entity serving as the CxA may be either an employee(s) of the City or an entity engaged by the City to provide such services.
Design Consultant	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.
LEED Consultant	The entity responsible for providing LEED sustainability services for the Project. The entity serving as the LEED Consultant 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: The Contractor must comply with the following:

1. Progress Submission: As directed by the Resident Engineer, submit progress as-built Contract Record Drawings at the fifty percent (50%) construction completion stage.

2. Final Submission: Before Substantial Completion payment, the Contractor must 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 must 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 must bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (l/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. Contract Record Drawing Title Sheet: The Contractor must prepare a title sheet, the same size as the Contract Record Drawings, which must 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 must 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 must 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 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 must 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 must maintain one (1) set of blue- or black-line white prints as applicable of the Contract Record Drawings and Shop Drawings. If applicable, the Contract Record Drawings and Shop Drawings must 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 must mark record drawings 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 must be distinctly encircled and identified by change order number correlating to changes listed on the "Title Sheet." The Contractor must 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 Contract Record Drawings;
2. Revisions to details shown on Contract Record 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; and
14. Record information on the Work that is shown only schematically.

C. Progress Record Mylar’s (reproducible): As directed by the Resident Engineer, at fifty percent (50%) construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consultant. When directed by the Resident Engineer, transfer progress mark-ups to a full set of Mylar’s (reproducible) and submit one (1) blue line or black line record copy to the Resident Engineer. The marked-up Mylar’s (reproducible) must 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 the Certificate of Substantial Completion, review marked-up record prints with the Resident Engineer and the Design

Consultant. When authorized, complete mark-up of a full set of corrected Mylar drawings (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 Record 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 Contract 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 Contract 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 must meet with the Resident Engineer at the Site to determine which of the samples maintained during the construction period must 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 CONSTRUCTION RECORD PHOTOGRAPHS:

A. The Contractor must submit the final completion construction photographs, in compliance with Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION.

2.6 OPERATING AND MAINTENANCE MANUALS:

A. The Contractor must 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 must be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front must 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 must 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. Each manual must contain the following materials, in the order listed:

1. Title page
2. Table of contents
3. Manual contents

E. Arrange contents alphabetically by system, subsystem, and equipment. Cross-reference Specification Section numbers. Provide tabbed flyleaf for each separate product, equipment and/or system/subsystem with typed description of product and major component parts of equipment.

F. Safety warnings or cautions must be visibly highlighted within each maintenance procedure. Use of such highlights must be limited to only critical items and must not be used in an excessive manner which would reduce their effectiveness.

G. 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.

H. 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.

I. All material within manuals must be new. Copies used for prior submittals or used in construction must not be used.

J. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.

K. Manuals must present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations must preferably consist of line drawings. All applicable drawings must be included. If available, color photograph prints may be included.

L. Preliminary manual editions must be as technically complete as the final manual edition. All illustrations must be in final forms.

M. Final manual editions must be technically accurate and complete and must represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All illustrations, text and tabular material must be in final form. All shop drawings must be included as specified in individual Specification Sections.

N. 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.

O. Instructions for care and maintenance: Include manufacturers' recommendations for cleaning agents and methods, and recommended schedule for cleaning and maintenance.

P. 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.

Q. Additional requirements: Specified in individual Specification Sections.

2.7 FINAL SITE SURVEY

A. The Contractor must submit the final certification and final survey in compliance with Section 01 73 00 EXECUTION.

2.8 DEMONSTRATION AND ORIENTATION DVD:

A. The Contractor must submit a final version of applicable demonstration and training DVD recordings in compliance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

2.9 GUARANTEES AND WARRANTIES:

B. SCHEDULE B: Requirements for guarantees and warranties for the Project are set forth in Schedule B, which is included as part of the Addendum.

C. FORM: For all guaranty requirements set forth in Schedule B, the Contractor must provide a written guaranty, in the form set forth herein.

D. 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.

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

2.10 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.

2.11 LEED MATERIALS AND MATRIX:

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.

2.12 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 (1) 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 the Project.

B. Maintenance of Record Documents and Samples: Store Contract 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 Contract 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 78 39

(No Text on This Page)

SECTION 01 79 00
DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 79 00

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes administrative and procedural requirements, when set forth in sections of the Project Specifications, for instructing the 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 video recordings.

B. The Contractor must provide the services of orientation specialists from the Contractor's equipment manufacturers. The specialists must be experienced in the type of equipment to be demonstrated.

C. Separate orientation sessions must 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 must 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 FOR MEP SYSTEMS, and/ or Section 01 91 15 BUILDING ENCLOSURE COMMISSIONNING 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 FOR MEP SYSTEMS
F. Section 01 91 15 BUILDING ENCLOSURE COMMISSIONNING REQUIREMENTS
G. Specific requirements for demonstration and orientation indicated in other sections of the Project Specifications.

1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

Term	**Definition**
Commissioning Authority / Commissioning Agent (CxA)	The entity responsible for providing commissioning services for the Project. The entity serving as the CxA may be either an employee(s) of the City or an entity engaged by the City to provide such services.
Design Consultant	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 an outline of the instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Commissioner for approval no less than thirty (30) Days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.

1. At completion of orientation, submit three (3) complete training manual(s) and three (3) applicable video 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 a 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 materials to the Resident Engineer a minimum of fourteen (14) Days prior to the scheduled orientation.

F. Demonstration and Orientation Recordings:

1. All Projects:

a. The Contractor must submit to the Commissioner three (3) copies of demonstration and orientation video recordings within seven (7) Days of end of each orientation module.

b. Identification: On each copy, provide an applied label with the following information:

1) Project Contract I.D. Number
2) Project Contract Name
3) Name of Contractor
4) Name of Subcontractor as applicable
5) Name of Design Consultant
6) Name of Construction Manager as applicable
7) Date recorded
8) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

9) Table of Contents including list of systems covered.

c. Transcript: Prepared on 8-1/2-by-11-inch paper, 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.

d. Commissioned Projects: The Contractor must submit one (1) additional copy of the demonstration and orientation video recording to the CxA through the Resident Engineer who will include the approved recording in the commissioning report.

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 in accordance with 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. For 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; and
   h. Performance curves.
2. For documentation, review the following items in detail:
   a. Emergency manuals;
   b. Operations manuals;
   c. Maintenance manuals;
   d. Project Record Documents;
   e. Identification systems; and
   f. Warranties.
3. For 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; and
   f. Special operating instructions and procedures.
4. For 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; and
   m. Special operating instructions and procedures.
5. For adjustments, include the following:
   a. Alignments;
   b. Checking adjustments;
   c. Noise and vibration adjustments; and
   d. Economy and efficiency adjustments.
6. For troubleshooting, include the following:
   a. Diagnostic instructions; and
   b. Test and inspection procedures.

7. For 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; and
   h. Housekeeping practices.
8. For 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; and
   e. Review of spare parts needed for operation and maintenance.

PART III – EXECUTION

3.1 INSTRUCTION:

A. Facilitator: Engage a qualified facilitator to prepare the instruction program and orientation 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 must engage qualified instructors to instruct the 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 upon times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.

   1. Schedule orientation with the Resident Engineer with at least fourteen (14) Days advance notice.

D. Evaluation: At the conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral or written 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 VIDEO RECORDINGS:

A. All projects:

   1. The Contractor must engage a qualified commercial videographer to video 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 the 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 video recording on USB drive or other electronic media as requested by the Commissioner.

   5. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and orientation. Display continuous running time.

6. Narration: Describe scenes on the recording by audio narration by microphone while recording or by dubbing audio narration off-site after. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

7. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from opposite the corresponding narration segment.

B. Commissioned Projects: 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 the Contractor. The provider of the orientation program will video record the sessions and provide a copy to the CxA for final review and comments. If necessary, Contractor must edit the recording per CxA comments.

END OF SECTION 01 79 00

SECTION 01 81 13.03
SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13.03

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. 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 must 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, will 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 FOR LEED v3 BUILDINGS
C.	Section 01 81 19	INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS
D.	Section 01 91 13	GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS
E.	Section 01 91 15	GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE

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.

Agrifiber Products	Means 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.
Composite Wood	Means 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.
Design Consultant	Means 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.
Forest Stewardship Council (FSC) Certified Wood	Means wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
LEED	Means the Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council.
Rapidly Renewable Materials	Means 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.
Regionally Manufactured Materials	Means 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.
Regionally Extracted, Harvested, or Recovered Materials	Means materials which are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.
Recycled Content	Means 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). 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. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials. "Pre-consumer" may also be referred to as "post-industrial".
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.

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.1through 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) must 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 must 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 x pre-consumer percentage x product value + 1 x post-consumer percentage x product value = 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 must record the above information only for those materials or products permanently installed in the project. The EBMCF must 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 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 will be calculated according to ASTM E 1980. Reflectance will be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance will 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 ≤ 2:12)

    b. 29 for steep-sloped roofing applications (slope > 2:12)

    SRI values will be calculated according to ASTM E 1980. Reflectance will be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance will be measured according to ASTM E 408 or ASTM C 1371.

    Vegetated roof surfaces are exempt from the SRI criteria.

11. LOW MERCURY LAMPS: For all fluorescent, compact fluorescent, and HID lamps installed in the project, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying:

    a. The mercury content or content range per lamp in milligrams or picograms;

    b. The design light output per lamp (light at 40% of a lamp's useful life) in lumens; and

    c. The rated average life of the lamp in hours.

    In addition, provide the total number of each lamp type installed in the project.

12. FLOORSCORE CERTIFICATION: For all hard surface flooring, including vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, and wall base, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the current FloorScore standard requirements.

13. CONCRETE: Provide concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state in which the concrete manufacturer or supplier is located.

14. INTERIOR LIGHTING FIXTURES: For each lighting fixture type installed within the building's weather barrier, provide manufacturer's cut sheets indicating the following:

    a. Fixture power in watts.

    b. Initial lamp lumens.

    c. Photometric distribution data.

    d. Dimming capability, in range of percentages.

15. EXTERIOR LIGHTING FIXTURES: For each lighting fixture type installed on site, provide manufacturer's cut sheets indicating the following:

    a. Fixture power in watts.

    b. Initial lamp lumens.

    c. Photometric distribution data.

    d. Range of field adjustability, if any.

    e. Warranty of suitability for exterior use.

16. ALTERNATIVE TRANSPORTATION: Provide manufacturer's cut sheets and/or shop drawings for the following items installed on site:
    a. Bike racks, including total number of bicycle slots provided.
    b. Signage indicating parking spaces reserved for electric or low-emitting vehicles and for carpools/vanpools, including total number of signs.
17. WATER CONSERVING FIXTURES: For all water consuming plumbing fixtures and fittings, provide manufacturer's cut sheets showing maximum flow rates and/or flush rates.
18. ENERGY SAVING APPLIANCES: Provide manufacturer's cut sheets and published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the product's rating under the U.S. EPA/DOE Energy Star program, for all of the following:
    a. Appliances (i.e., refrigerators, dishwashers, microwave ovens, televisions, clothes washers, clothes dryers, chilled water dispensers).
    b. Office equipment (i.e., copy machines, fax machines, plotters/printers, scanners, binding and publishing equipment).
    c. Electronics (i.e., servers, desktop computers, computer monitor displays, laptop computers, network equipment).
    d. Commercial food service equipment
19. GLAZING: For glazing in any windows, doors, storefront and window wall systems, curtainwall systems, skylights, and partitions, provide manufacturer's cut sheets indicating the following:
    a. Glazed area.
    b. Visible light transmittance.
    c. Solar heat gain coefficient.
    d. Fenestration assembly u-factor.
20. VENTILATION: Provide manufacturer's cut sheets for the following:
    a. Carbon dioxide monitoring systems, if any, installed to measure outside air delivery.
    b. Air filters: for detailed requirements refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS.
21. REFRIGERATION: For all refrigeration equipment, provide manufacturer's cut sheets indicating the following:
    a. Equipment type.
    b. Equipment life. Default values specified by the 2007 ASHRAE Applications Handbook will be used unless otherwise demonstrated by the manufacturer's guarantee and an equivalent long-term service contract.
    c. Refrigerant type.
    d. Refrigerant charge in pounds of refrigerant per ton of gross cooling capacity.
    e. Tested refrigerant leakage rate, in percent per year. A default rate of 2% will be used unless otherwise demonstrated by test data.
    f. Tested end-of-life refrigerant loss, in percent. A default rate of 10% will be used unless otherwise demonstrated by test data.

1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

A. The LEED BUILDING Submittal information must 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:

1. The Plan must be in accordance with the New York State Department of Environmental Conservation (NYSDEC) or the 2003 EPA Construction General Permit, whichever is more stringent.

2. The Plan must be submitted in accordance with Section 01 33 00, SUBMITTAL PROCEEDURES.

3. Detailed requirements: ESC Plan

   a. Include the Stormwater Pollution Prevention Plan, if required.

   b. Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.

   c. Describe all site work that will be implemented on the project.

   d. Provide site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, and inlet/catch basin protection.

   e. Describe the inspection and maintenance of the ESC measures. Provide a construction schedule indicating weekly site review.

   f. Describe reporting and documentation measures.

4. Detailed requirements: ESC Measures

5. Submittal requirements: ESC Tracking Log

   a. Note date of major rain events, describe damage, describe any repairs or maintenance performed, and note responsible party.

   b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party.

   c. Submit monthly.

6. Implementation

   a. The Contractor must 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 must be responsible for the provision, maintenance, and repair of all ESC measures.

c. Demonstration. The Contractor must provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.

d. Meetings. Urgent or ongoing ESC issues will be discussed at weekly on-site job meetings.

1.9 QUALITY ASSURANCE:

A. The Contractor must 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 is 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 is responsible for distributing the EBMCF and any other forms or templates required for the subcontractors to record LEED documentation. The Contractor 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 must 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 13.03

ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM

Contractor Name: _____
Contractor Contact: _____
Telephone Number: _____

Project Name: _____
Project I.D.: _____

Product/Manufacturer	Material Cost[1]	Recycled Content			Regional[4]			Rapidly Renewable[7]		VOC content[8]		Flooring[9]	Wood	
		Pre-Consumer (% by wt)[2]	Post-Consumer (% by wt)[3]	Total % (½ Pre + Post)	Location & Distance to Extraction[5]	Location & Distance to Manufacture[6]	Extracted & Manuf. (% by wt)	Material	% by wt	*VOC content listed	*VOC content allowed	*Green Label or FloorScore	*Added urea formaldehyde (Yes/No) [10]	FSC Certified[11] (% by wt)

[1] Material Cost: As it appears on the manufacturer's or distributor's invoice to the contractor or subcontractor. Does not include labor or equipment costs associated with installation.

[2] Pre-Consumer Recycled Content: Industrial/manufacturing waste material (e.g., fly-ash and synthetic gypsum, both waste products from coal burning electricity plants) diverted from landfill and incorporated into a finished product. Scrap raw materials that can be reused in the same manufacturing process from which they are recovered are not considered Pre-Consumer Recycled Content.

[3] Post-Consumer Recycled Content: Material or product that has served its intended consumer use (e.g., an empty plastic bottle) and has been diverted from landfill and incorporated into a finished product.

[4] Regional: Refers to a material/product that is BOTH extracted AND manufactured within 500 miles of the Project site. Record this information ONLY for materials/products meeting BOTH of these criteria.

[5] Extraction: Refers to the location from which the raw resources used in a building product are extracted, harvested, or recovered.

[6] Manufacture: Refers to the location of the final assembly of components into a building product that is furnished and installed by the Contractor.

[7] Rapidly Renewable: Refers to materials/products derived from agricultural products that are typically harvested within a ten-year or shorter cycle.

[8] VOC Content: The quantity of volatile organic compounds contained in adhesives, sealants. paints and architectural coatings. Reported in grams/liter or lbs/gallon, less water.

[9] Flooring: For carpet, indicate Carpet and Rug Institute (CRI) Green Label Plus certification. For carpet cushion, indicate CRI Green Label certification. For all flooring except unfinished/untreated wood and mineral-based flooring (tile, masonry, terrazzo, cut stone) without organic-based coatings or sealants, indicate Resilient Floor Covering Institute FloorScore rating. VOC limits for adhesives, sealants, etc. still apply.

[10] Added Urea Formaldehyde: Applies to composite wood and agrifiber products only (plywood, particleboard, MDF, OSB, wheatboard, strawboard). Resins or binders with added urea formaldehyde are prohibited.

[11] FSC Certified: Certification from the Forest Stewardship Council. This column is only applicable to wood products.

* Applies only to materials/products installed within the weather barrier.

Contractor Certification:

I, _____ a duly authorized representative of_____ (the Contractor) hereby certify that the material information contained herein is an accurate representation of the material qualifications to be provided by the Contractor as components of the final building construction. Furthermore, I understand that any change in such qualifications during the purchasing period will require prior written approval from the Commissioner.

Signature of Authorized Representative: _____ Date: _____

SECTION 01 81 13.04
SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13.04

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
6. VOC Requirements for Interior Adhesives and Sealants
7. VOC Requirements for Interior Paints and Coatings
8. Low-Emitting Materials, Flooring
9. Low-Emitting Materials, Composite Wood
10. Low-Emitting Materials, Ceilings, Walls, Thermals and Acoustic Insulation
11. Low-Emitting Materials, Furniture
12. Low-Emitting Materials, Exterior Applied Products
13. Low-Emitting Materials, Additional Low-Emitting Requirements

C. This Section includes requirements for Volatile Organic Compound (VOC) emissions and content in specific materials used within the Project.

D. All sections in the Project Specifications with adhesives, sealant or sealant primer applications, paints, coatings, flooring, composite wood, ceilings, walls, thermal and acoustic insulation, furniture, and for healthcare and schools, exterior applied products, 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, coatings, flooring, composite wood, ceilings, walls, thermal and acoustic insulation, furniture, and for healthcare and schools, exterior applied products, the requirements set forth in this Section shall prevail.

1.3 RELATED SECTIONS: Include without limitation the following:

A.	Section 01 74 19	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
B.	Section 01 81 19	INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS
C.	Section 01 91 13	GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS
D.	Section 01 91 15	GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE

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.

Adhesive	Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers.
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
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.
Bio-based materials	Composed in whole or in significant part of biological products, renewable agricultural materials or forestry materials, and must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Exclude hide products, such as leather and other animal skin material.
Building Exterior	A structure's primary and secondary weatherproofing system, including waterproofing membranes and air- and water-resistant barrier materials, and all building elements outside that system.
Building Interior	Everything inside a structure's weatherproofing membrane.
Carcinogen	A chemical listed as a known, probable, reasonably anticipated, or possible human carcinogen by the International Agency for Research on Cancer

	(IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA).
Certified Wood	See Forest Stewardship Council (FSC) Certified Wood.
Clear Wood Finish	Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film.
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.
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.
Cradle-to-Gate Assessment	Analysis of a product's partial life cycle, from resource extraction to the factory gate, before it is transported for distribution and sale.
Design Consultant	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.

Enclosure	The exterior plus semi-exterior portions of the building. Exterior consists of the elements of a building that separate conditioned spaces from the outside (i.e., the wall assembly). Semi-exterior consists of the elements of a building that separate conditioned space from unconditioned space or that encloses semi-heated space through which thermal energy may be transferred to or from the exterior or conditioned or unconditioned spaces (e.g., attic, crawl space, basement).
Environmental Product Declaration (EPD)	A statement that the item meets the environmental requirements of, ISO 14025, 14040 and EN 15804, or ISO 21930 and have at least a cradle-to-gate scope.
Extended Producer Responsibility	A. A waste management strategy, also known as closed-loop program or product take-back, where the manufacturer's responsibility for a product is extended to the post-consumer stage of the product's life-cycle.
Floor Coating	Opaque coating applied to flooring. Excludes industrial maintenance coatings.
Forest Stewardship Council (FSC) Certified Wood	Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
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.
Inherently Non-Emitting Materials	Products that are inherently non-emitting sources of VOCs, including stone, ceramic, powder-coated metals, plated or anodized metals, lass, concrete, clay brick, unfinished solid wood, untreated solid wood. These materials are considered compliant without VOC testing if they do not include integral organic-based surface coatings, binders or sealants.
Lacquer	Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film.

LEED	The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council (USGBC).
Life-Cycle Assessment	An evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14040-2006 and ISO 14044-2006.
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).
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.
Paint	A pigmented coating. For the purposes of this specification, paint primers are considered to be paints. A. 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). B. 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). C. Non-Flat High-Gloss Coating or Paint: Has a gloss of greater than or equal to 70 (using a 60-degree meter). Anti-Corrosive / Rust Preventative Paint: Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates.
Permanently Installed Building Product	See Product.
Primer	A. 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.
Product	A. An item that arrives on the Project site either as a finished element ready for installation or as a component to another item assembled on-site. The product unit is defined by the functional requirement for use in the Project; this includes the physical components and services needed to serve the intended function of the permanently installed building product. Similar products within a specification shall each contribute as a separate product.
Product-Specific Declaration	A. Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle-to-gate scope.
Recycled Content	A. 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). Recycled content claims for products must conform to the definition in ISO 14021-1999, Environmental Labels and Declarations, Self-Declared Environmental Claims (Type II Environmental Labeling). 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. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.

	"Pre-consumer" may also be referred to as "post-industrial".
Regionally Manufactured Materials	Materials that are manufactured, distributed and purchased within a radius of 100 miles from the Project location. Manufacturing refers to all points of manufacture for an assembly of components.
Regionally Extracted, Harvested, or Recovered Materials	Materials which are extracted, harvested or recovered, manufactured, distributed and purchased within a radius of 100 miles from the Project site.
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.).
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).
Sealant	Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints between surfaces. Includes sealant primers and caulks.
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.
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.
Stain	Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
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.
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.
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.Waterproofing Sealer: A coating that prevents the penetration of water into porous substrates.

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. 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 permanently installed materials included in General Construction work. For Plumbing, Mechanical and Electrical work, LEED Building Submittals are only required for field-applied adhesives, sealants, paints and coatings. Voluntary inclusion of system components such as piping, pipe insulation, ducts, conduits, plumbing fixtures, faucets and lamp housings shall be consistently applied to the Project's LEED credits. 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 Sub-Section 1.6 C below.

C. Detailed Requirements: Sub-Sections 1.6 C.1 through 1.6 C.18 below define the information and documents to be submitted for each type of LEED Building Submittal as identified in the LEED Building Submittals heading in each specification section:

1. LEED v4 Material and Resources (MR) Credits Calculator for Building Product Disclosure and Optimization (Disclosure and Optimization Calculator): With each submittal of a product permanently installed in the Project, the Contractor shall be responsible for the completion of the Disclosure and Optimization Calculator, which can be found on USGBC's website. The Contractor shall maintain an updated Disclosure and Optimization Calculator for all applicable products throughout the Project duration and submit the updated calculator on a monthly basis.

    a. The Disclosure and Optimization Calculator shall record the information outlined in Items b.-c. below for all permanently installed products, the information outlined in Item d. below for all permanently installed concrete mixes, and the information outlined in Items e.-i. below for all permanently installed products that have the content, disclosure or optimization characteristics described herein:
    b. 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).
    c. 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 x pre-consumer percentage x product value + 1 x post-consumer percentage x product value = total recycled content value).
        2) See additional requirements for concrete in section 1.6.C.1.d below.
    d. 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, submit a complete breakdown of all components, by weight and by cost.
    e. Identification (Yes/No) of materials manufactured, distributed and purchased within 100 miles of the Project site AND containing raw materials harvested or extracted within 100 miles of the Project site, if used in the Project, as well as the following information:
        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.
    f. The percentage (by cost) of "Forest Stewardship Council (FSC) Certified" wood products, if used in the Project.
        1) Record all new wood products, indicating which are FSC-certified. 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.
    g. The number or percentage of products with Environmental Product Declarations (EPD), with fractional or multiplied values as indicated below. If a product used in the Project has an EPD Declaration, submit one of the following:
        1) EPD:
            i. Product-Specific Declaration: Valued as one quarter (1/4) of a product
            ii. Industry-Wide (Generic) EPD: Valued as one half (1/2) of a product
            iii. Product-Specific Type III EPD: Valued as one whole product
        2) Documentation of third-party certification of impact reduction below industry average for at least three of the following categories, valued at 100%:
            i. Global warming potential (greenhouse gases), in CO_2e;
            ii. Depletion of the stratospheric ozone layer, in kg CFC-11;
            iii. Acidification of land and water sources, in moles H+ or kg SO_2;
            iv. Eutrophication, in kg nitrogen or kg phosphate;

v. Formation of tropospheric ozone, in kg NOx or kg ethene; and depletion of nonrenewable energy resources, in MJ.

3) For 1) and 2) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site, it is valued as two times the whole product.

4) For 1) and 2) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

h. The number or percentage of products for which Sourcing of Raw Materials has been documented, with fractional or multiplied values as indicated below. If a product used in the Project has documented Sourcing of Raw Materials, submit one of the following:

1) Corporate sustainability report (CSR). Submit one of the following:
   i. Manufacturer's self-declared report: valued as half of a product
   ii. Third-party verified CSR which include environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain: valued as one whole product:
      1. Global Reporting Initiative (GRI) Sustainability Report
      2. Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises
      3. U.N. Global Compact: Communication of Progress
      4. ISO 26000: 2010 Guidance on Social Responsibility
      5. Other USGBC approved programs meeting the CSR criteria

2) Documentation of at least one of the responsible extraction criteria below:
   i. Extended producer responsibility program, valued as half of a product
   ii. Bio-based materials, valued as one whole product
   iii. Certified Wood: Wood-based materials include all materials made from wood, including engineered wood products and wood-based panel products, valued as one whole product
   iv. Material Reuse: Materials may be salvaged, refurbished, or reused, valued as one whole product.
   v. Recycled content. The sum of post-consumer recycled content plus one-half the pre-consumer recycled content, based on cost, valued as one whole product.
   vi. Other USGBC approved programs meeting leadership extraction criteria

3) For 1) and 2) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site: valued as two times the whole product.

4) For 1) and 2) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products. Products meeting multiple criteria may only be counted once.

i. The number or percentage of products for which Material Ingredients have been disclosed, with fractional or multiplied values as indicated below. If a product used in the Project discloses its Material Ingredients, submit one of the following:

1) Chemical inventory of the product to at least 0.1% (1000 ppm), documented by one of the following:
   i. Manufacturer Inventory
   ii. Health Product Declarations (HPDs)
   iii. Cradle to Cradle (C2C) certifications
   iv. Declare product labels

v. ANSI/BIFMA e3 Furniture Sustainability Standard (Furniture may be included, providing it is included consistently in all MR Credits.)

2) Documentation of compliance with one of the following material ingredient optimization criteria programs:
   i. GreenScreen benchmarks
   ii. Cradle to Cradle certifications
   iii. REACH optimizations
   iv. Other USGBC approved programs meeting building product optimization criteria

3) Documentation that the product is sourced from a manufacturer that meets all of the below supply chain optimization criteria:
   i. Manufacturer engages in validated and robust safety, health, hazard and risk programs which at a minimum document at least 99% (by weight) of the ingredients used to make the building product or building material
   ii. Manufacturer provides independent third party verification of the following conditions for their supply chain, at a minimum:
      1. Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation
      2. Processes are in place to identify, document, and communicate information on health, safety and environmental characteristics of chemical ingredients
      3. Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients
      4. Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients
      5. Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain
      6. Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain

4) For 2) and 3) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site: valued as two times the whole product. Products compliant with both 2) and 3) may only be counted once.

5) For 1), 2), and 3) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

2. LEED v4 Indoor Environmental Quality Credit Low-Emitting Materials Calculator (EQ Calculator). With each relevant product submittal, the Contractor shall be responsible for the completion of the EQ Calculator, which can be found on USGBC's website. The Contractor shall maintain an updated EQ Calculator throughout the Project duration for all applicable products and submit the updated calculator on a monthly basis.

   a. The EQ Calculator shall record information for all relevant products as outlined below. Include the following documentation. Detailed requirements are listed in b. – j. below.
      1) VOC content of all field-applied interior adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon, less water.
      2) General Emissions Evaluation for more than 90 percent of all field-applied interior paints, coatings, adhesives, and sealants, by volume, and for 100 percent of all flooring, ceilings, walls, and thermal and acoustic insulation.
      3) Composite Wood Evaluation for all composite wood not covered by other categories.

4) Furniture Evaluation for 90% of all furniture, by cost.
5) For schools/healthcare only: Exterior-Applied Products Evaluation for 90% of all exterior applied materials, measured by volume. All batt insulation products shall contain no added formaldehyde.

b. VOC REQUIREMENTS, GENERAL: The following materials must meet the listed compliance requirements for emissions and content standards, for all applicable categories. All products shall comply with each applicable threshold requirement. Refer to LEED BD+C Reference Guide, EQ Credit Low-Emitting Materials for additional guidance.

1) General Emissions Requirements: Products must demonstrate they have been tested and determined compliant in accordance with California Department of Public Health (CDPH), Standard Method v1.1-2010, using the applicable exposure scenario, and stating the range of total VOCs (TVOC) after 14 days measured as specified in the CDPH Standard Method v1.1 as follows:
   i. 0.5mg/m3 or less;
   ii. between 0.5 and 5.0 mg/m3; or,
   iii. 0.50 mg/m3 or more
2) No product shall contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioacculmulative 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.
3) No product shall contain the following:
   i. methylene chloride
   ii. 1,1,1-trichloroethane
   iii. benzene
   iv. toluene
   v. ethylbenzene
   vi. vinyl chloride
   vii. naphthalene
   viii. 1,2-dichlorobenzene
   ix. di (2-ethylhexyl) phthalate
   x. butyl benzyl phthalate
   xi. di-n-butyl phthalate
   xii. di-n-octyl phthalate
   xiii. diethyl phthalate
   xiv. dimethyl phthalate
   xv. isophorone
   xvi. antimony
   xvii. cadmium
   xviii. hexavalent chromium
   xix. lead
   xx. mercury
   xxi. formaldehyde
   xxii. methyl ethyl ketone
   xxiii. methyl isobutyl ketone
   xxiv. acrolein
   xxv. acrylonitrile
4) No product shall contain more than 1.0% by weight of sum total of volatile aromatic compounds.

c. VOC REQUIREMENTS FOR INTERIOR ADHESIVES AND SEALANTS:
1) For field applications that are inside the weatherproofing system, use adhesives and sealants that comply with the following limits for VOC content when calculated

according to South Coast Air Quality Management District (SCAQMD) Rule #1168 requirements in effect on July 1, 2005, and rule amendment date January 7, 2005:

	Allowable VOC Content (g/L):
Architectural Applications:	
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesives	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single ply roof membrane adhesives	250
Specialty Applications:	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Computer diskette manufacturing	350
Contact adhesive	80
Special purpose contact adhesive	250
Tire retread	100
Adhesive primer for traffic marking tape	150
Structural wood member adhesive	140
Sheet applied rubber lining operations specialty	850
Top and Trim adhesive	250
Substrate Specific Applications:	
Metal to metal substrate specific adhesives	30
Plastic foam substrate specific adhesives	50
Porous material (except wood) substrate specific adhesives	50
Wood substrate specific adhesives	30
Fiberglass substrate specific adhesives	80
Sealants:	
Architectural sealant	250
Marine deck sealant	760
Nonmember roof sealant	300
Roadway sealant	250
Single-ply roof membrane sealant	450
Other sealant	420
Sealant Primers:	
Architectural non-porous sealant primer	250
Architectural porous sealant primer	775

Modified bituminous sealant primer	500
Marine deck sealant primer	760
Other sealant primer	750
Other	
Other adhesives, adhesive bonding primers, adhesive primers or any other primers	250

2) For field applications that are inside the weatherproofing system, a minimum of 90 percent of adhesives and sealants, by volume, shall comply with the requirements of the CDPH "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

d. VOC REQUIREMENTS FOR INTERIOR PAINTS AND COATINGS:

1) For field applications that are inside the weatherproofing system, use paints and coatings that comply with the following limits for VOC content when calculated according to the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the SCAQMD Rule #1113, effective June 3, 2011.

Product Type:	Allowable VOC Content (g/L):
Bond Breaker	350
Clear wood finishes - Varnish	275
Clear wood finishes – Sanding Sealer	275
Clear wood finishes - Lacquer	275
Colorant – Architectural Coatings, excluding IM coatings	50
Colorant – Solvent Based IM	600
Colorant - Waterborne IM	50
Concrete – Curing compounds	100
Concrete – Curing compounds for roadways & bridges	350
Concrete surface retarder	50
Driveway Sealer	50
Dry-fog coatings	50
Faux finishing coatings - Clear topcoat	100
Faux finishing coatings – Decorative Coatings	350
Faux finishing coatings - Glazes	350
Faux finishing coatings - Japan	350
Faux finishing coatings – Trowel applied coatings	50
Fire-proof coatings	150
Flats	50
Floor coatings	50
Form release compounds	100
Graphic arts (sign) coatings	150
Industrial maintenance coatings	100
Industrial maintenance coatings – High temperature IM coatings	420
Industrial maintenance coatings – Non-sacrificial anti-graffiti coatings	100
Industrial maintenance coatings – Zinc rich IM primers	100

Magnesite cement coatings	450
Mastic coatings	100
Metallic pigmented coatings	150
Multi-color coatings	250
Non-flat coatings	50
Pre-treatment wash primers	420
Primers, sealers and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Roof coatings, aluminum	100
Roof primers, bituminous	350
Rust preventative coatings	100
Stone consolidant	450
Sacrificial anti-graffiti coatings	50
Shellac- Clear	730
Shellac – Pigmented	550
Specialty primers	100
Stains	100
Stains, interior	250
Swimming pool coatings – repair	340
Swimming pool coatings – other	340
Traffic Coatings	100
Waterproofing sealers	100
Waterproofing concrete/masonry sealers	100
Wood preservatives	350
Low solids coatings	120

2) For field applications that are inside the weatherproofing system, 90 percent of paints and coatings shall comply with the requirements of the CDPH's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

e. LOW-EMITTING MATERIALS, FLOORING: Flooring shall comply with the requirements of the CDPH's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

f. LOW-EMITTING MATERIALS, COMPOSITE WOOD: Composite wood, agrifiber products, and adhesives shall be made using ultra-low-emitting formaldehyde (ULEF) resins as defined in the CARB's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.

g. LOW-EMITTING MATERIALS, CEILINGS, WALLS, THERMAL, AND ACOUSTIC INSULATION: Ceilings, walls, and thermal and acoustic insulation shall comply with the requirements of the CDPH's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

h. LOW-EMITTING MATERIALS, FURNITURE: At least 90 percent of furniture, measured by cost, shall be tested in accordance with ANSI/BIFMA Standard Method M7.1-2011; comply with ANSI/BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, using either the concentration modeling approach or the emissions factor approach; and model the test results using the open plan, private office, or seating scenario in ANSI/BIFMA M7.1, as appropriate.

i. LOW-EMITTING MATERIALS, EXTERIOR APPLIED MATERIALS (HEALTHCARE/ SCHOOLS ONLY): At least 90 percent of exterior applied materials, measured by volume,

shall comply with the requirements of the CDPH's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

1) The following materials are prohibited and do not count toward total percentage compliance:
   a) Hot-mopped asphalt for roofing.
   b) Coal tar sealants for parking lots and other paved surfaces.

j. LOW-EMITTING MATERIALS, ADDITIONAL LOW-EMITTING REQUIREMENTS: If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.

1) If a product cannot reasonably be tested as specified above, testing of VOC content must comply with ASTM D2369-10; ISO 11890, part 1; ASTM D6886-03; or ISO 11890-2.

2) Methylene chloride and perchloroethylene may not be intentionally added in adhesives, sealants, paints or coatings.

3. BACK-UP DOCUMENTATION: For each material listed in the Disclosure and Optimization Calculator or the EQ Calculator, provide and submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, including but not limited to the documentation to certify the material's LEED Building attributes, as applicable:

   a. RECYCLED CONTENT: Submit 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 SOURCING (WITHIN 100 MILES): Submit 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, manufactured, distributed 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 100 miles of the Project site, provide the percentage (by weight) that these materials comprise in the complete product.
   c. BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION: Submit published third-party or manufacturer's product literature or letter of certification, on the third-party or manufacturer's letterhead, certifying the documented disclosure and optimization information.
   d. VOC EMISSIONS AND CONTENT: Submit Material Safety Data Sheets (MSDS), for all applicable products. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings, flooring, composite wood, ceilings, walls, thermal and acoustic insulation, furniture, and for healthcare and schools, exterior applied products. MSDS shall indicate the VOC emissions and content of products submitted. (If an MSDS does not include a product's VOC emissions and content, then product data sheets, manufacturer literature, or a letter of certification from the manufacturer shall be submitted in addition to the MSDS to indicate the VOC emissions and content). Submit product third-party certificates and test reports, stating the testing methodology and the model, to include units that are consistent with those required. For wet-applied products, the manufacturer's documentation must state each product's classification and application according to the referenced standard's definition.

4. PRODUCT CUT SHEETS: Submit product cut sheets with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project.

5. FSC-CERTIFIED WOOD: If FSC-Certified Wood is used in the Project, submit:

a. Copies of vendor's invoices itemizing all new wood purchases, showing the cost for each line item.
b. For FSC-certified products, the vendor invoice shall list product's FSC content percent and its Chain-of-Custody (CoC) certification number.
c. For FSC-certified products, submit the product and producer's CoC certificates.
d. For FSC-certified products modified on-site, submit on-site installer's CoC certification.
e. For assemblies, submit the percentage (by cost and by weight) of the assembly that is FSC-certified wood and published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the percentage that is FSC-certified wood.

6. HIGH ALBEDO PAVING AND WALKWAY MATERIALS: For paving and walkway materials made from concrete or brick, submit published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying a minimum 3-year aged Solar Reflectance (SR) value of 0.28. If 3-year aged value information is not available, submit published product literature or letter verifying an initial SR value of at least 0.33 at installation.

7. HIGH ALBEDO ROOFING MATERIALS: For exposed roofing membranes, pavers, and ballast products, submit published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following minimum Solar Reflectance Index (SRI) values, 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.

   a. 82 for initial SRI, or 64 for 3-year aged SRI for low-sloped roofing applications (slope ≤ 2:12)
   b. 39 for initial SRI or 32 for 3-year aged SRI for steep-sloped roofing applications (slope > 2:12)

8. LOW MERCURY LAMPS: For all fluorescent, compact fluorescent and HID lamps installed in the Project, submit the total number of each lamp type and submit published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following information. Preheat, T-9, T-10 and T-12 fluorescents or mercury vapor high-intensity discharge (HID) lamps shall not be installed in the Project. For healthcare projects only, probe-start metal halide HID lamps shall not be installed in any interior spaces.

   a. The mercury content or content range per lamp in milligrams or picograms, meeting the following criteria;

Lamp	Maximum Mercury Content (milligram)
T-8 fluorescent, eight-foot	10 mg
T-8 fluorescent, four-foot	3.5 mg
T-8 fluorescent, U-bent	6 mg
T-5 fluorescent, linear	2.5 mg
T-5 fluorescent, circular	9 mg
Compact fluorescent, nonintegral ballast	3.5 mg
Compact fluorescent, integral ballast	3.5 mg, ENERGY STAR qualified
High-pressure sodium, up to 400 watts	10 mg
High-pressure sodium, above 400 watts	32 mg

   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.

9. EXIT SIGNS: Illuminated exit signs shall not contain mercury, and shall use less than 5 watts of electricity.

10. CONCRETE: Submit concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state of New York.

11. INTERIOR LIGHTING FIXTURES: For each lighting fixture type installed within the building's weather barrier, submit 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.

12. EXTERIOR LIGHTING FIXTURES: For each lighting fixture type installed on site, submit 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.

13. ALTERNATIVE TRANSPORTATION: Submit 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.

14. WATER CONSERVING FIXTURES: For all water consuming plumbing fixtures and fittings, submit manufacturer's cut sheets showing maximum flow rates and/or flush rates.

15. ENERGY SAVING APPLIANCES: Submit 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.

16. GLAZING: For glazing in any windows, doors, storefront and window wall systems, curtainwall systems, skylights, and partitions, submit manufacturer's cut sheets indicating the following:

    a. Glazed area.
    b. Visible light transmittance.
    c. Solar heat gain coefficient.
    d. Fenestration assembly u-factor.

17. VENTILATION: Submit manufacturer's cut sheets for the following:

    a. Carbon dioxide monitoring systems, if any, installed to measure outside air delivery.
    b. Air filters: for detailed requirements refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS.

18. REFRIGERATION: For all refrigeration equipment, submit manufacturer's cut sheets indicating the following:

    a. Equipment type.

b. Equipment life. Default values specified by the 2007 ASHRAE Applications Handbook will be used unless otherwise demonstrated by the manufacturer's guarantee and an equivalent long-term service contract.
c. Refrigerant type.
d. Refrigerant charge in pounds of refrigerant per ton of gross cooling capacity.
e. Tested refrigerant leakage rate, in percent per year. A default rate of 2% will be used unless otherwise demonstrated by test data.
f. Tested end-of-life refrigerant loss, in percent. A default rate of 10% will be used unless otherwise demonstrated by test data.

1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

A. The LEED Building Submittal information shall be assembled into one package per contract specification section(s) (or per subcontractor), and submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. Incomplete or inaccurate LEED Building Submittals may be used as the basis for the rejection of products or assemblies.

B. All final LEED Building Submittal information with back-up documentation shall be submitted within two (2) months of the Project's substantial completion. If in the Project's LEED review, the USGBC or their third party reviewer requires additional documentation as it relates to the LEED Building Submittals, the Contractor shall provide the requested documentation within two (2) weeks.

1.8 LEED ACTION PLANS:

A. Construction Waste Management Plan- Refer to Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for detailed requirements.

B. Construction IAQ Management Plan- Refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS for detailed requirements.

C. Erosion and Sedimentation Control (ESC) Plan:
1. The Plan shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC)'s New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) or the 2012 EPA Construction General Permit, whichever is more stringent.
2. The Plan shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.
3. Detailed requirements: ESC Plan
    a. Include the Stormwater Pollution Prevention Plan, if required.
    b. Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.
    c. Describe all site work that will be implemented on the Project and include timing of implementation.
    d. Submit site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, inlet/catch basin protection and perimeter controls.
    e. Establish and clearly delineate construction buffer zones to avoid soil compaction and other construction damage to greenfields.
    f. Describe the inspection and maintenance protocols of the ESC measures. Submit a construction schedule indicating weekly site review.
    g. Describe reporting and documentation measures.
4. Detailed requirements: ESC Tracking Log

a. Note date of major rain events, describe damage, describe any repairs or maintenance of specific control measures performed, and note responsible party.
b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party. Submit date-stamped photographs, inspection reports or other recording processes.
c. Submit monthly.

5. Implementation
   a. Before Demolition and/or Construction begins, 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 monthly, and for assembling the required LEED documentation.
   b. The Contractor shall be responsible for the provision, maintenance, and repair of all ESC measures. Any problems identified in site inspections shall be resolved in a timely manner.
   c. Demonstration. The Contractor shall provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
   d. All sub-contractors shall promptly notify the ESC Representative if damage to an ESC measure is observed.
   e. Meetings. Urgent or ongoing ESC issues shall be discussed at weekly on-site job meetings.
6. All projects, including zero lot line buildings and projects that cause minimal or even no exterior site disturbance, must have ESC Plan that meets requirements.
7. Contractor shall save such original documents for the life of the Project plus seven (7) years.

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 monthly, and for assembling the required LEED documentation. The Contractor shall facilitate measurements taken by authorized parties on site for LEED compliance verification purposes.

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 LEED v4 MR Credits Calculator for Building Product Disclosure and Optimization, the LEED v4 EQ Credit Low-Emitting Materials Calculator, and any other forms or templates required for the subcontractors to record LEED documentation. The Contractor shall also be responsible for collecting and compiling Building Product Disclosure and Optimization and Low-Emitting Materials 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 in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION:
   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

1.10 REFERENCES:

A. New York State Standards and Specifications for Erosion and Sediment Control, amended November 2016: http://www.dec.ny.gov/docs/water_pdf/2016nysstanec.pdf

B. 2012 EPA Construction General Permit: https://www.epa.gov/npdes/epas-2012-construction-general-permit-cgp-and-related-documents

C. South Coast Air Quality Management District (SCAQMD), Rule 1168: www.aqmd.gov

D. South Coast Air Quality Management District (SCAQMD), Rule 1113: www.aqmd.gov

E. CDPH Standard Method v1.1-2010: www.cal-iaq.org

F. ISO 17025: www.iso.org

G. ISO Guide 65: www.iso.org

H. CARB 93120 ATCM: arb.ca.gov/toxics/compwood/compwood.htm

I. ANSI/BIFMA M7.1 Standard Test Method for Determining VOC Emissions from Office Furniture Systems, Components and Seating: bifma.org

J. ANSI/BIFMA e3-2011 Furniture Sustainability Standard: bifma.org

K. ISO 14021–1999, Environmental labels and declarations—Self Declared Claims (Type II Environmental Labeling): iso.org

L. ISO 14025–2006, Environmental labels and declarations (Type III Environmental

M. Declarations—Principles and Procedures): iso.org

N. ISO 14040–2006, Environmental management, Life cycle assessment principles, and frameworks: iso.org

O. ISO 14044–2006, Environmental management, Life cycle assessment requirements, and guidelines: iso.org

P. International Standard ISO 21930–2007 Sustainability in building construction—Environmental declaration of building products: iso.org

Q. Federal Trade Commission, Guides for the Use of Environmental Marketing Claims, 16 CFR 260.7 (e): ftc.gov/bcp/grnrule/guides980427.htm

R. Global Reporting Initiative (GRI) Sustainability Report: globalreporting.org/

S. Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational

T. Enterprises: oecd.org/daf/internationalinvestment/guidelinesformultinationalenterprises/

U. U.N. Global Compact, Communication of Progress: unglobalcompact.org/cop/

V. ISO 26000—2010 Guidance on Social Responsibility: iso.org/iso/home/standards/iso26000.htm

W. Forest Stewardship Council: ic.fsc.org

X. Sustainable Agriculture Network: sanstandards.org

Y. The Rainforest Alliance: rainforest-alliance.org/

Z. ASTM Test Method D6866: astm.org/Standards/D6866.htm

AA. Chemical Abstracts Service: cas.org/

BB. Health Product Declaration: hpdcollaborative.org/

CC. Cradle-to-Cradle CertifiedCM Product Standard: c2ccertified.org/product_certification

DD. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): echa.europa.eu/support/guidance-on-reach-and-clp-implementation

EE. GreenScreen: https://www.greenscreenchemicals.org/method/greenscreen-list-translator

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 13.04

SECTION 01 81 13.13

VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED v3 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 will 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 will 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 v3 BUILDINGS
I. Section 01 81 19 INDOOR AIR QUALITY 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.

ADHESIVE	Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers. A. 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.
CARCINOGEN	A chemical listed as a known, probable, reasonably anticipated, or possible human carcinogen by the International Agency for Research on Cancer (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA).
CLEAR WOOD FINISH	Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film. A. Lacquer: Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film. B. Sanding Sealer: A sanding sealer that also meets the definition of a lacquer. C. 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.
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.
FLOOR COATING	Opaque coating applied to flooring. Excludes industrial maintenance coatings.
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.

MUTAGEN	A. 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).
OZONE-DEPLETING COMPOUNDS	A. 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.
PAINT	A. 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.
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.
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.).
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).
SEALANT	Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints between surfaces. Includes sealant primers and caulks.

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.
STAIN	Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
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.
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.
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 must 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, must not be allowed if such changes compromise the stated environmental goals.

1.6 REFERENCES:

A. Rule 1168 – “Adhesive and Sealant Applications”, amended 7 January 2005): South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov

B. Rule 1113 - “Architectural Coatings”, amended 9 July 2004: South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov

C. Green Seal Standard GS-11- “Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org

D. Green Seal Standard GC-03- “Anti-Corrosive Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org

1.7 VOC REQUIREMENTS FOR INTERIOR ADHESIVES, SEALANTS, PAINTS AND COATINGS:

A. GENERAL: Unless otherwise specified herein, the VOC content of all interior adhesives, sealants, paints and coatings (herein referred to as “products”) must not be in excess of **250 grams per liter.**

B. No product shall contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioacculmulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception must 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 will 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 will 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
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 must not exceed the limits defined in Rule 1168 – "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.

B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.

1. Sealants:

a.	Architectural	250
b.	Non-membrane roof	300
c.	Roadway	250
d.	Single-ply roof membrane	450
e.	Other	420

2. Sealant Primer:

a.	Architectural – Nonporous	250
b.	Architectural – Porous	775
c.	Other	750

1.10 VOC REQUIREMENTS FOR INTERIOR PAINTS:

A. Paints and Primers: Paints and primers used in non-specialized interior applications (i.e., for wallboard, plaster, wood, metal doors and frames, etc.) shall meet the VOC limitations of the Green Seal Paint Standard GS-11, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:

1. Volatile Organic Compounds:
   a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.

      Interior Paints and Primers:
      Non-flat: 150 g/l

Flat: 50 g/l
The calculation of VOC shall exclude water and tinting color added at the point of sale.

B. Anti-Corrosive and Anti-Rust Paints: Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must 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 must 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 must 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 must 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 must 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 13.03 SUSTAINABLE REQUIREMENTS FOR LEED v3 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

(No Text on This Page)

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 must 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, and poor housekeeping, must 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. Division 9 (of the Specifications): Finishes.

C. 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 LEED Rating System, as specified in Section 01 81 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

D. Refer to the Addendum to identify whether this project is designed to comply with Section 01 81 13.13 VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED v3 BUILDINGS.

E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS.

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.

Design Consultant	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.

Volatile Organic Compounds (VOCs)	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 VOCs are harmful, but many of those contained within building products contribute to the formation of smog and may irritate building occupants by their smell or health impact.
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 VOCs emitted by "source" materials and release them over a prolonged period of time.
Materials that act as "sources" for VOC contamination	Products with high VOC contents that emit VOCs 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", Second Edition, 2007, The Sheet Metal and Air Conditioner Contractors National Association (SMACNA). (703) 803-2980, www.smacna.org.

B. ANSI/ASHRAE 52.2-2007, "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 will not be allowed if such changes compromise the stated LEED building performance criteria.

1.7 CONSTRUCTION IAQ MANAGEMENT PLAN:

A. The Contractor must prepare a Construction IAQ Management Plan in coordination with each Subcontractor and submit the Construction IAQ Management Plan to the Commissioner for approval in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. The Construction IAQ Management Plan must meet the following criteria:

1. Construction activities must be planned to meet or exceed the minimum requirements of SMACNA's "IAQ Guidelines for Occupied Buildings under Construction", Second Edition, 2007.

2. Absorptive materials must be protected from moisture damage when stored on-site and after installation.

3. The planned operation of air handlers during construction must be described. 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 grille and return or transfer duct inlet opening, such that there is no bypass around the filtration media, as determined by ASHRAE 52.2-2007.

4. Filtration media must be replaced immediately prior to occupancy. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2-2007.

5. A sequence of finish installation plan "Plan" must be developed, highlighting measures to reduce the absorption of VOCs by materials that act as "sinks".

6. The use of tobacco products is prohibited inside the building and within 25 feet of the building entrance during construction.

7. A flush-out or air testing must be performed.

8. Upon approval of the finish installation plan by the Commissioner, it must 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. Detailed requirements of the Construction IAQ Management Plan are 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 must be organized in accordance with the SMACNA format, and must address measures to be implemented in each of the five categories (including subsections). All subsections must 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, 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.

7) To reduce debris and contamination to mechanical systems, do not store materials in mechanical rooms.

b. Source Control

1) Protect stored on-site or installed absorptive or porous materials. Store materials in dry conditions indoors, under cover, and off the ground or floor.

2) Do not use wet or damaged porous materials in the building. Materials which become contaminated through direct exposure to moisture from precipitation, plumbing leaks, or condensation must be replaced by the Contractor, at no additional cost to the City of New York.

3) Use low-toxicity and low-VOC materials to the greatest extent possible.

4) 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.

5) Prevent exhaust fumes from idling vehicles, equipment and fossil-fueled tools from entering the building.

6) Containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, must be closed when not in use.

7) Enforce the no-smoking job site policy.

c. Pathway Interruption

1) Depressurize work areas which 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.

6) Provide walk-off mats at entryways to reduce introduced dirt and pollutants.

7) Use dust guards and collectors on saws and other tools.

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 high-efficiency particulate filters. Activities which produce high levels of dust must 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) Keep materials organized to improve job safety as well as indoor air quality.

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 must be a regular action topic at weekly site coordination meetings. Implementation of the Plan must be documented in the meeting minutes.

2. Protection of Materials from Moisture Damage: As part of the “Source Control” section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage must be described. This section must also describe corrective measures to be taken if moisture damage does occur to absorptive materials during the course of construction (see Section 1.7 B.1.b).

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 must be provided.

The description must 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 must be installed after the installation of materials or finishes which have high short-term emissions of VOCs, 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. Pre-Occupancy Phase: Perform either a flush-out or air sample testing (Options 1 or 2, respectively), as follows:

   a. OPTION 1 — Flush-Out

      1) Perform flush-out using either Path 1 or Path 2.

         i. Path 1: After construction ends, prior to occupancy and with all interior finishes installed, install new filtration media and 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 no higher than 80 degrees F and relative humidity no higher than 60%.

         ii. Path 2: 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 must be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in IEQ Prerequisite: Minimum Indoor Air Quality Performance, whichever is greater. During each day of the flush-out period, ventilation must begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions must be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space.

      2) Commissioning can occur during flush-out, at the discretion of the Commissioner, provided none of the commissioning procedures introduce contaminants into the space and none of the flush-out procedures circumvent the commissioning process. Complete testing and balancing of the HVAC system after the flush-out is complete. Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS.

      3) If even partial construction work occurs during the flush-out, the flush-out must be started again from the beginning for that space. If multiple, discrete HVAC systems operate independently, flush-out may be completed in portions of the building as work is completed in each area served by a given system.

   OR

   b. OPTION 2 — Air Testing

      1) Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with current versions of the United States Environmental Protection Agency “Compendium of Methods for the Determination of Air Pollutants in Indoor Air” or ISO methods, as additionally detailed in the USGBC “LEED BD+C Reference Guide.”

2) Demonstrate that the contaminant maximum concentrations listed below are not exceeded.

CONTAMINANT	MAXIMUM CONCENTRATION
Formaldehyde	27 parts per billion
Particulates (PM10 for all buildings; PM25 for buildings in EPA nonattainment areas, or local equivalent)	PM10: 50 micrograms per cubic meter PM25: 15 micrograms per cubic meter
Ozone (for buildings in EPA nonattainment areas)	0.075 parts per million
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
Target chemicals listed in the California Department of Public Health (CDPH) Standard Method c1.1, Table 4-1, except formaldehyde	CDPH Standard Method v1.1-2010, Allowable Concentrations, Table 4-1
Carbon Monoxide (CO)	9 part per million and no greater than 2 parts per million above outdoor levels

3) The air sample testing must be conducted as follows:

i. All measurements must 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.

ii. The building must 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 required to be in place for the testing.

iii. Prior to air sample testing, all punch-list items that would generate VOCs or other contaminants, the testing and balancing of the HVAC system and finalization of all cleaning must be completed. Use low-emitting cleaning products and vacuum cleaners with HEPA filtration.

iv. 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 must 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.

v. Air samples must 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.

vi. 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.

6. Implementation and Coordination: Before Demolition and/or Construction begins, the Contractor must implement the Construction IAQ Management Plan, coordinate the Construction IAQ Management Plan with all affected trades, and 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 Construction IAQ Management Plan with the Commissioner monthly 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 must distribute copies of the Construction IAQ Management Plan in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

b. Instruction: The Contractor must provide on-site instruction of appropriate site management to all Contractor's Subcontractors.

c. Monitoring: The Construction IAQ Representative must monitor the implementation of the Construction IAQ Management Plan.

1.8 SUBMITTALS:

A. Submit the following LEED-required records and documents in accordance with Section 01 33 00 SUBMITTAL PROCEDURES and, as applicable, Section 01 81 13.03 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

A. A copy of the Construction IAQ Management Plan as defined in Sub-Section 1.7 herein.

B. IAQ Tracking Log
   1. Note date of observed major Construction IAQ issues, describe any damage, describe any repairs or maintenance of specific control measures performed and note responsible party.
   2. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party. Provide date-stamped photographs, inspection reports or other recording processes.
   3. Submit log monthly.

B. Product cut-sheets for all filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets must be submitted with the Contactor's or Subcontractor's "approved" stamp as confirmation that the products are the products installed on the Project.

C. PHOTOGRAPHS: Submit to the Commissioner 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 of each IAQ measure. The photographs must 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 must include integral date stamping, and must 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 "Testing, Adjusting and Balancing" (TAB) report, if applicable.

1.9 QUALITY ASSURANCE:

A. The Contractor will be responsible for preparing and implementing the Construction IAQ Management Plan and must coordinate and incorporate the work of its Subcontractors in the IAQ Management Plan. Include the Construction IAQ Management Plan requirements in contract agreements with Subcontractors. Familiarize Subcontractors with the Construction IAQ Management Plan and how the Construction IAQ Management Plan will affect their daily activities. Hold a Subcontractors' orientation meeting to review the Construction IAQ Management Plan requirements.

B. Responsibility of Subcontractors: Subcontractors for this Project will be responsible for cooperating with the Contractor in the preparation and implementation of the Construction IAQ Management Plan.

C. Include construction IAQ progress check-ins as a regular item in weekly Subcontractor meetings and safety meetings. Provide a copy of the plan on site, posted in an easily accessible area.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 19

SECTION 01 91 13
GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS

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. The OPR and BOD documents 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:

This section includes general requirements that apply to implementation of Commissioning without regard to systems, subsystems and equipment being commissioned. General Requirements for building enclosure commissioning are addressed in a separate specification.

A. This Section includes:
1. Definitions
2. Commissioning Team
3. City's Responsibilities
4. Contractor's Responsibilities
5. CxA Responsibilities
6. Commissioning Documentation
7. Submittals
8. Coordination
9. Execution

1.3 RELATED SECTIONS:

A. System-Specific Commissioning requirements indicated in other sections of the Project Specifications for specific requirements for commissioning systems.

B. This Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning must be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor must 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 OWNER'S PRE-ACCEPTANCE ORIENTATION
6.	Section 01 81 13	SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS
7.	Section 01 91 15	GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE

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.

Basis of Design (BOD)	A document, prepared by the Design Consultant, 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.
Checklists	Forms that outline the step-by-step process that must be executed to fulfill the test requirements and to verify that materials, equipment, assemblies and systems are installed in accordance with the Contract Documents. The CxA must develop the checklists; the Contractor must complete them.
Commissioning	Commissioning is a systematic process of ensuring and documenting that the building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The process does not eliminate or reduce the responsibility of the installing contractors to provide a finished product.
Commissioning Agent (Aka Commissioning Authority) (CxA)	Consultant under separate contract with the City of New York to provide Commissioning services for this Project. The CxA must not be an employee of the Contractor, nor will the CxA have any interest in the Contract.
Commissioning Plan	A document developed by the CxA that outlines the organization, schedule, roles and responsibilities, allocation of resources, and documentation requirements of the commissioning process.
Deferred Performance Tests	Performance tests that are performed, at the discretion of the CxA, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design, or other site conditions that disallow the test from being performed.
Design Consultant	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.
Factory Testing	Testing of equipment on-site or at the factory, by factory personnel, with or without the City’s representative.
Functional Performance Test (FPT)	Functional performance testing includes the dynamic functions and operations of equipment and systems using manual or monitoring methods under various levels of operation. Systems are tested under various modes, such as during low cooling loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarms, power failure, etc. The systems are run through all the control system’s sequences of operation and components are verified to respond as the sequences state. Such tests must be performed as per the protocol written by the CxA which definines the methods, personnel and expectations.
Issue (or Deficiency)	A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the Contract Documents.

Issues Log	A formal and ongoing record of problems, deficiencies or concerns that have been raised by members of the Commissioning Team during the course of commissioning. The Issues Log is the primary tracking tool to address all Commissioning Issues by concerned parties. All Issues must be addressed and resolved by the concerned parties before the closeout of the Project. This log tracks the resolution performed and date of closure of each Issue.
Master Equipment List (MEL)	A complete listing of all commissioned building equipment, including details such as make, model, location, ID Tag number, etc. that is taken from submittals and is the basis from which checklists will be generated. The MEL is a spreadsheet which is also used as a tracking tool for all milestones of the commissioning process, such as the creation and performance of checklists, startup of equipment, TAB work, etc.
Monitoring	The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.
Owner (City of New York) Contracted Tests	Tests paid for by the City of New York outside of the Contractor's Contract and for which the CxA does not provide oversight. These tests will not be repeated during functional testing if properly documented.
Owner's (City of New York) Project Requirements (OPR)	A document, prepared by the Design Consultant 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.
Pre-functional (Installation) Checklists	A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Contractor. Installation checklists are primarily static inspections and procedures to prepare equipment or systems for initial operation. Pre-functional (Installation) checklists augment, and are combined with, the manufacturer's startup checklist. The Checklists are filled out by the Contractor and reviewed by the CxA.
Sampling	Functional testing for a percentage of the total number of identical or near-identical pieces of equipment.
Seasonal Performance Tests	Functional tests that are deferred until, or performed again when, the system(s) will experience climate conditions close to their design conditions.
Startup	The initial starting or activating of equipment, including executing construction checklists.
Systems, Subsystems, Equipment, and Components	Where these terms are used together or separately, they mean "as-built" systems, subsystems, equipment, and components.
Systems Manual	A system-focused composite document that includes the Operation and Maintenance Manual, and additional information of use to the owner during the occupancy and operations phase.
Testing, Adjusting and Balancing (TAB)	Testing, adjusting, and balancing of the Heating Hot Water (HHW), Chilled Water (CHW) and Heating, Cooling, and Ventilation Airflow distribution system flows and pressures as specified in Contract Documents by a subcontractor certified to perform such work.
Test Requirements	Requirements specifying what modes and functions, etc. must be tested on any given piece of equipment or any given system (integrated or standalone). The test requirements are not the detailed test procedures. The test requirements for each system are specified in the respective Contract Documents.

Trending	Monitoring using the building controls system, and analysis of the data gathered over a period of time.

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 will 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. Design Consultant and other concerned entities.

1.6 CITY'S RESPONSIBILITIES:

A. Provide the OPR and BOD documentation to the CxA for use in developing the Commissioning Plan; systems manual; operation and maintenance orientation plan; and testing plans and checklists.

B. Assign operation and maintenance personnel to participate in Commissioning Team activities.

C. Provide full details and results of any Owner- contracted tests relevant to the current Project.

1.7 CONTRACTOR'S RESPONSIBILITIES:

A. The Contractor must provide utility services required for the commissioning process.

B. As a member of the Commissioning Team, the Contractor and Subcontractors must assign representatives with expertise and authority to act on behalf of the Contractor and its Subcontractor 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. Provide all factory acceptance test reports to the CxA through the Commissioner.

4. Respond to any additional specific information requests from the CxA. CxA may request additional documentation necessary for the commissioning process. Requests by CxA may precede, be concurrent with, or follow normal submittals.

5. Ensure the cooperation and participation of all Subcontractors and manufacturers of equipment to be commissioned.

6. Verify and confirm that components, equipment, and system are functioning as per design prior to CxA witnessing testing.

7. Perform testing required in the Commissioning schedule as per the Commissioning process test procedures provided by the CxA, providing no less than 48 hours' notice to the CxA through the Commissioner.

8. Complete installation checklists as Work is completed and return to CxA through the Commissioner.

9. Provide written responses to the CxA through the Commissioner for resolution of Issues recorded in the Issues Log within five (5) business days.

10. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.

11. Submit As-Built documents, operation and maintenance manuals for systems and subsystems, and equipment in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS. Such documents must be submitted prior to functional testing.

12. Provide orientation sessions for operations and maintenance personnel (sessions will be witnessed by the CxA) in accordance with Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION. Provide no less than 48 hours' notice to the CxA, through the Commissioner. Video record and edit orientation sessions and provide DVD to the CxA and Commissioner no later than two (2) weeks after the orientation session occurs. Edit as requested by the Commissioner.

1.8 COMMISSIONING AGENT'S (CxA) RESPONSIBILITIES:

A. Organize and lead the Commissioning Team.

B. Prepare a construction-phase Commissioning Plan. Collaborate through the Commissioner 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. Update the Commissioning Plan during construction as required.

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 Commissioner, in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION, to convene Commissioning Team meetings for the purpose of coordination, communication and conflict resolution; discuss progress of the commissioning processes.

E. At the beginning of the construction phase, coordinate with the Commissioner'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 orientation sessions, TAB Work, testing, and Project completion.

F. Perform site visits to observe and inspect construction as described in the Commissioning Plan. 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 and distribute project-specific test and inspection procedures and checklists and maintain MEL.

H. Verify air and water systems balancing by sampling, reviewing completed reports and selected site observation. Coordinate submittal reviews with the Commissioner so that the comments are combined into a single review and submitted to the Contractor.

I. Coordinate with the Commissioner to witness and document tests, inspections and systems startup, as per the Commissioning Plan.

J. Maintain an Issues Log and a record of functional testing. Report all Issues as they occur to the Commissioner.

K. Compile test data, inspection reports and certificates, and include them in the systems manual and Commissioning Report.

L. Certify date of acceptance and startup for each item of equipment for start of warranty periods.

M. 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.

N. Review agenda for orientation; witness and confirm orientation session conforms with agenda and Contract Documents; review recording of demonstration and orientation sessions provided by the Contractor on USB drive or other electronic media as requested by the Commissioner and provide appropriate comments for editing.

O. Return to the site ten (10) months into the twelve (12)-month guaranty period, to review with facility staff the current building operation and the condition of outstanding Issues related to the original and seasonal commissioning. Interview facility staff and identify problems or concerns they have with operating the building as originally intended.

P. Prepare Commissioning Reports.

Q. Assemble the final commissioning documentation, including the Commissioning Report and Systems Manual.

R. Perform all CxA tasks as defined by LEED; prepare LEED submittal documents.

1.9 COMMISSIONING DOCUMENTATION:

The Contractor must assist the CxA in the development and compiling of the following Commissioning Documentation:

A. Index of Commissioning Documents: The CxA will prepare an index including the storage location of each document.

B. Commissioning Plan: A document prepared by the CxA that outlines the schedule, allocation of resources, roles and responsibilities, and documentation requirements of the Commissioning process.

C. Test Checklists: The 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, but must include without limitation:

1. Identification of tested item
2. Date of test
3. Indication of whether the record is for a first test or retest following correction of a problem or Issue
4. Dated signatures of the person performing the test and of the witness if applicable
5. Deficiencies and Issues, if any, generated as a result of the test

D. 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.

E. Test and Inspection Reports: The 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 must compile test and inspection reports and test and inspection certificates and include them in systems manual and Commissioning Report.

F. Corrective Action Documents: The 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 must retest systems and equipment requiring corrective action. The CxA will document retest results.

G. Issues Log: The 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. The Issues Log will identify, at a minimum:

1. The party responsible for correcting the Issue,
2. The person documenting the Issue resolution,
3. The exact location of the Issue (floor and room),
4. The applicable system component,
5. A detailed description of the Issue,
6. The Issue status, and
7. The date the Issue was discovered and the date the Issue was resolved.

H. Commissioning Report: The 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. The Commissioning Report must include:

1. An executive summary, including participants and their roles, a brief building description, an overview of the commissioning and testing scope, and a general description of testing and verification methods,
2. Installation/Pre-Functional Checklists,
3. Start-up reports,
4. Functional Test documentation,
5. Trend Log Analysis,
6. The final Issues Log, with all Issues identified through the commissioning process, identifying which, if any, Issues remain unresolved,
7. The Commissioning Plan,
8. Commissioning progress and field reports,
9. Commissioning review documents, and
10. Record of owner’s orientation.

I. Systems Manual: The 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. Submittal of shop drawings, product data, samples, etc., relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 33 00 SUBMITTAL PROCEDURES.

B. As-Built Contract Record Drawings and Operating and Maintenance Manuals relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.

C. All demonstration and orientation submittals relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION.

D. Completed Prefunctional (Installation) Checklists must be provided to the CxA.

1.11 COORDINATION:

A. Coordination of Commissioning is the responsibility of all Commissioning Team members.

B. Coordinating Meetings: The CxA will coordinate with the Commissioner'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. Commissioner and Contractor must ensure that all required Commissioning Team members attend.

C. Construction Documents: The Contractor, through the Commissioner, will furnish copies of all construction documents, addenda, change orders and appropriate submittals and shop drawings to the CxA.

D. Pre-testing Meetings: The CxA will coordinate with the Commissioner 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. Commissioner and Contractor must ensure that all required Commissioning Team members attend.

E. Testing Coordination: Contractor must coordinate schedule times with the Commissioning Team, through the Commissioner, for tests, inspections, obtaining samples, and similar activities. The CxA will advise the Commissioning Team as to 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.

F. Manufacturers' Field Services: The Contractor must coordinate manufacturers' field services, as per the Commissioning Plan.

G. The CxA will regularly apprise the Commissioner of progress, pending problems and/or disputes, as well as provide regular status reports on progress with each system.

PART II – PRODUCTS

2.1 TEST EQUIPMENT

A. All industry standard test equipment required for performing the specific tests must be provided by the Contractor responsible for testing. Any proprietary Vendor-specific test equipment must be provided by that Vendor or Manufacturer.

B. Special equipment, tools, instruments, software, and equipment communication network access hardware and software (only available from Vendor, specific to the piece of equipment) required for testing equipment according to the Contract Documents must be included at no extra cost to the City and must be turned over

to the City at Project close-out, except for stand-alone data logging equipment that may be used by the CxA.

C. Any portable or handheld setup and/or calibration devices required to initialize the control system must be made available by the control vendor for use by the CxA at no additional cost to the City.

D. The instrumentation used in the commissioning process must comply with the following:

1. Be of sufficient quality and accuracy to test and/or measure system performance within the tolerances required
2. Be calibrated at the manufacturer's recommended intervals with calibration tags permanently affixed to the instrument
3. Be maintained in good repair and operating condition throughout use duration on this Project
4. Be immediately recalibrated or repaired if dropped and/or damaged in any way during this Project.

PART III – EXECUTION

3.1 COMMISSIONING PROCESS

A. The following provides an overview of the Commissioning tasks during Project construction and the general order in which they occur.

1. Construction-phase Commissioning begins with a Commissioning Kickoff Meeting, conducted by the CxA through the Commissioner in accordance with section 01 31 00 PROJECT MANAGEMENT AND COORDINATION, where the Commissioning process is reviewed with all the Commissioning Team Members.
2. Additional meetings may be required throughout construction, scheduled by the CxA through the Commissioner in accordance with 01 31 00 PROJECT MANAGEMENT AND COORDINATION with necessary parties attending, to plan, scope, coordinate and schedule future activities and resolve open Issues.
3. The CxA will review the Contractor submittals concurrent with the Commissioner and provide comments to the Commissioner for inclusion in their review. The reviewed submittals will include all commissioned equipment information, including detailed startup procedures, and coordination drawings that include commissioned equipment and systems, control drawings and sequences, and interfaces and interlocks between systems.
4. The CxA works with the Commissioner and Contractor in developing Pre-functional and Functional Test documentation formats.
5. Periodically throughout the construction process, the CxA will perform site visits to observe component and system installations.
6. The checkout and performance verification generally proceeds from component level to equipment to systems and intersystem levels. Pre-functional (Installation) Checklists are to be completed before Functional Performance Checklists.
7. The Contractor must, with guidance from the CxA, execute and document the Pre-Functional (Installation) Checklists and perform startup and initial checkout of equipment and systems. The CxA documents that the checklists and startup are completed according to the approved plans. This will include the CxA witnessing selected assembly markups, portions of the startup of selected equipment, and spot checking the Pre-Functional (Installation) Checklists.
8. The CxA develops specific equipment and system Functional Checklists. The Contractor receives a copy of the procedure through the Commissioner. The CxA may request additional design

narrative from the Commissioner and Controls Contractor, depending on the completeness of the Basis of Design and sequences provided within the design documents.

9. The Functional Checklists are executed by the Contractor and witnessed and documented by the CxA.

10. Items of non-compliance in material, installation startup, and operation are corrected and the equipment or system is rechecked. The CxA will maintain an Issues Log to track Issues and Issue resolution.

11. The CxA will review the Operation & Maintenance documentation for completeness.

12. Commissioning, excluding the Warranty Walkthrough, must be completed prior to Substantial Completion.

13. The CxA reviews the orientation documentation. The orientation schedules and agenda are provided by the subcontractors. The CxA verifies that orientation is completed, attended by the appropriate City of New York personnel, is thorough and provides all necessary information required to operate and service the equipment or system.

14. Deferred testing/checkouts are conducted, as specified or required in the Contract Documents.

3.2 COMMISSIONING PLAN AND SCHEDULE

A. Commissioning Plan: The Commissioning Plan provides guidance in the execution of the commissioning process. After the initial construction phase Commissioning kickoff meeting, the CxA will update the plan. This plan is a living document that must evolve and expand as the Project progresses. The Commissioning Plan must include:

1. Description of the facility and Project.

2. Description of the commissioning process and associated deliverable documents.

3. Description of equipment and systems to be commissioned.

4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.

5. Sample rates for equipment to be tested.

6. Identification of task items that must be completed before the next operation can proceed.

7. Description of responsibilities of Commissioning Team members.

8. Description of observations to be made and reported on during testing and witnessing of testing by all parties involved in the Project.

B. Commissioning Schedule: Contractor must provide construction schedules to the CxA, in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION. The CxA will develop and submit a schedule identifying the commissioning process and provide commissioning scheduling information to the Commissioner and Contractor for review and planning activities. The Contractor must incorporate the CxA's activities into the Project schedule.

3.3 TESTING PROCEDURES

A. The CxA will determine and document the acceptance procedures for each system within disciplines. The acceptance procedures must incorporate the commissioning standards and successful testing results as referred to throughout the Specifications.

B. The CxA will provide performance checklists and performance checkout data sheets for each system based on actual system configuration. Special emphasis must be placed on checkout procedures that must conclusively determine actual system performance and compliance with the OPR and BoD.

C. The Contractor and appropriate Vendor(s) must be informed of what tests are to be performed and the expected results. The Commissioning Plan must address the test requirements and be distributed to all parties involved with that system.

D. Prior to Functional Testing, the Contractor must provide the following:

1. Contractor must certify in writing that commissioned systems, subsystems, and equipment have been installed, calibrated and started, and are operating according to the Contract Documents.

2. Contractor must certify in writing that all relevant instrumentation and control systems have been completed and calibrated; are operating according to the Contract Documents; and that pretest set points have been recorded.

3. Contractor must certify in writing that TAB procedures have been completed, and that the TAB report has been submitted, discrepancies corrected, and corrective work approved.

4. Contractor must perform tests for system and intersystem performance only after CxA and Commissioner have approved the completed testing checklists for systems, subsystems, and equipment.

E. The Functional Performance tests must be performed by the Contractor and Vendor(s) with oversight by the CxA. The CxA must witness, verify, and document these tests.

1. Functional Performance Tests must include operating the systems and components through each of the written sequences of operation, other significant modes of miscellaneous alarms, power failure, and security alarm when impacted by and interlocked with commissioned equipment, as detailed in the Commissioning Plan.

2. Checklists must be completed comprehensively and to the extent necessary to enable the CxA to assure the Commissioner that the systems perform as per the OPR, BOD, and Contract Documents.

3. If a test is failed for any reason and retesting is required, the Contractor must provide retesting at no additional cost to the City.

4. After testing, Contractor must return settings to normal operating conditions.

3.4 OPERATION & MAINTENANCE MANUALS

A. General

1. The CxA must review the Operation & Maintenance manuals provided by the Contractor for completeness of the document. The review process will verify that Operation & Maintenance instructions meet Specifications and are included for all commissioned equipment furnished by the Contractor.

2. Published literature will be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.

3. The Contractor must incorporate the standard technical literature into system-specific formats for this facility as designed and as actually installed. The resulting Operation & Maintenance information must be system-specific, concise, to the point and tailored specifically to this facility. The CxA must review these documents as necessary for final corrections by the Contractor.

4. Contractor must submit Operations & Maintenance Manuals for each piece of equipment for review no later than 45 days after submittal approval.

B. The Operation & Maintenance Manual review and coordination efforts must be completed prior to Owner orientation sessions, as these documents are to be utilized in the orientation sessions.

C. System Operations Manual

1. The CxA must prepare and deliver these documents with inputs from the Contractor. The Contractor must provide all required documents to the CxA, through the Commissioner. The required documents must be described in the Commissioning Plan and Contract Documents. Typically, the manual includes the following:

   a. System, subsystem, and equipment descriptions
   b. Commissioned systems single line diagrams (to be provided by Mechanical, Electrical, Plumbing, and Building Management System (BMS) subcontractors).
   c. As built sequences of operations, control drawings and original set points (to be provided by Design Consultant and BMS subcontractor).
   d. Operating instructions for integrated building systems (to be provided by Mechanical and BMS subcontractors).
   e. Recommended schedule of maintenance requirements and frequency (to be provided by subcontractors).
   f. Recommended schedule for calibrating sensors and actuators (to be provided by BMS subcontractor).

3.5 DEMONSTRATION AND INSTRUCTION

A. The Contractor must schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations must be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio orientation aids onsite with equipment.

B. The equipment vendors must provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.

C. The Contractor must record and edit demonstration and orientation sessions, and provide these records to the CxA, through the Commissioner.

D. For additional direction pertinent to instruction, refer to other specific divisions for demonstration and instruction requirements.

3.6 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 suitable loads / conditions were unavailable during the performance testing stages (in other words; the requirement for testing is warranted).

B. The CxA will return to the site approximately ten (10) months into the twelve (12)-month guaranty period and interview the occupants and maintenance staff, review the operation of the building, provide recommendations for installation and operational problems and document warranty and operational Issues in the Issues database.

3.7 RECORD DRAWINGS

A. The CxA must review the as built Contract Documents to verify incorporation of both design changes and as-built construction details. Discrepancies noted must be corrected by the appropriate party.

END OF SECTION 01 91 13

SECTION 01 91 15
GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 91 15

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 Owner's Project Requirements (OPR) and Basis of Design (BOD) documents 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 SECTION INCLUDES

A. This section includes the commissioning requirements for the Building Enclosure systems. Refer to "Building Enclosure Functional Performance Test Protocol" in other sections of the Project Specifications for specific requirements regarding Building Enclosure Commissioning.

1. The commissioning requirements for the Building Enclosure systems given in this section are entirely separate from, and in addition to, the Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for this Project. The Contractor, and his/her Suppliers, Subcontractors, Vendors, etc., are required to participate in both commissioning processes as required.

1.3 DESCRIPTION

A. Building Enclosure Commissioning (BECx) is a systematic process of ensuring all building enclosure systems responsible for environmental separation perform as per the OPR and BOD. The BECx process is intended to verify and document proper installation and performance of building enclosure materials and systems in accordance with the Contract Documents.

B. Commissioning does not take away from, or reduce, the Contractor's responsibility to provide a finished and fully functioning product and installation.

C. This section will in no way diminish the responsibility of the Contractor in performing all aspects of work and testing as outlined in the Contract Documents. Any requirements outlined in this section are in addition to requirements outlined in the Contract Drawings and Specifications.

1.4 RELATED WORK

A. Specific BECx requirements are given in this Section. The following Project Specification sections are related to the commissioning work specified in this section:

1. Basic Concrete Requirements: Refer to Division 03
2. Basic Metal Requirements: Refer to Division 05
3. Basic Waterproofing, Roofing, Air Barrier and Insulation Requirements: Refer to Division 07
4. Basic Fenestrations Requirements: Refer to Division 08
5. Basic Finishing Requirements: Refer to Division 09

1.5 DEFINITIONS AND ABBREVIATIONS

A. Refer to Article 2 of the Contract and Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for terms, words, and expressions not otherwise defined herein.

Approval	Acceptance that a material or system has been properly installed and is functioning in tested modes according to the Contract Documents.
Building Enclosure Commissioning Agent (BECA)	BECA directs and coordinates day-to-day BECx commissioning activities.
Building Enclosure Testing Agency (BETA)	Building Enclosure Testing Agency whom is an independent agency retained by the Contractor and approved by the Commissioner, fully accredited by the appropriate governing body for each of the materials, components or systems to be tested or evaluated for compliance with requirements of the Contract Documents and as directed by the BECA. Documentation of such certification must be submitted to and approved by the Commissioner prior to the start of any work by the BETA.
Commissioning	Commissioning is a systematic process of ensuring and documenting that the building systems, including the Building Enclosure, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent, and have documentation to support proper installation and operation. The process does not eliminate or reduce the responsibility of the installing Contractors to provide a finished product.
Commissioning Agent (CxA)	Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
Commissioning Plan	Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
Deficiency	Condition of a building enclosure material or system that is not in compliance with Contract Documents (that is, does not perform properly or does not comply with design intent).
Design Consultant	Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
Simulated Condition	Condition created for testing component or system (e.g., applying pressure differential across the building enclosure concurrent with water spray to simulate a wind driven rain).
Mock-up	The activities where systems or materials are initially constructed and tested.

1.6 COORDINATION

A. Building Enclosure Commissioning Team: Members of the Building Enclosure Commissioning Team will consist of:

1. CxA
2. BECA
3. BETA
4. Commissioner
5. Contractor, and all Building Enclosure Subcontractors
6. Design Consultant

B. Management: City of New York will contract services of the BECA through a separate contract. The BECA will direct and coordinate commissioning activities and report to the Commissioner. All members of the

Building Enclosure Commissioning Team must cooperate to fulfill contracted responsibilities and objectives of the Contract Documents.

C. Scheduling: BECA must work with the Building Enclosure Commissioning Team to establish required commissioning activities to incorporate into the preliminary commissioning schedule. The Contractor must integrate commissioning activities into master construction schedule, in accordance with Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION. Necessary notifications are to be made in a timely manner in order to expedite commissioning.

1.7 SUBMITTALS

A. Contractor must provide documentation required for commissioning work in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. At minimum, documentation must include, but not be limited to:

1. Submittal of shop drawings, product data, samples, etc., relevant to BECx and as requested by the BECA. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
2. As-Built Record Drawings and Operation and Maintenance Information relevant to BECx and as required by the BECA. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
3. All demonstration and orientation submittals relevant to BECx and as requested by the BECA. Such submittals must be in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION.
4. Performance data, any performance test procedures, and installation and checkout materials.

B. The Contractor must provide all submittals to the Design Consultant, as per Section 01 33 00 SUBMITTAL PROCEDURES. The Design Consultant will transmit all building enclosure related submittals to the BECA for concurrent review.

PART II – PRODUCTS – Part not used.

PART III – EXECUTION

3.1 SYSTEMS TO BE COMMISSIONED

A. Building Enclosure systems to be commissioned may include, but are not limited to, Below Grade Waterproofing Systems, Opaque Wall/Cladding Systems, and Fenestration systems. Refer to the Contract Documents for clarity.

3.2 RESPONSIBILITIES OF COMMISSIONING TEAM MEMBERS DURING CONSTRUCTION PHASE

A. Responsibilities of the Design Consultant include without limitation the following:

1. Review BECA comments on construction documents and shop drawings.
2. Assist in dispute resolution regarding building enclosure items.
3. Review BECA reports.
4. Incorporate BECA Submittal Review Comments into response on submittals.

B. Responsibilities of the BECA include the following without limitation:

1. Review and comment on Mock-up construction and testing plan as provided by Contractor.
2. Development of BECx Plan.
3. Review of building enclosure shop drawings and submittals, including "approved equal" requests, through the Commissioner in accordance with Section 01 33 00 Submittal Procedures.

4. Attend combined pre-construction and BECx kick-off meeting.
5. Develop construction checklists for the building enclosure for the Contractor's use.
6. Observe the construction of a building enclosure Mock-up.
7. Witness the testing of a building enclosure Mock-up.
8. Project meetings / conference calls / coordination.
9. Field monitor installation of exterior enclosure components.
10. Update field report log.
11. Update BECx Plan.
12. Advise on Requests for Information.
13. Assist with the preparation of LEED paperwork.
14. Prepare systems manual, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
15. Complete Maintenance Plan, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
16. Prepare training manual, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
17. Prepare final BECx record and enclosure commissioning close-out documents.
18. Develop on-going BECx Plan.

C. Responsibilities of the Contractor and Building Enclosure Subcontractors include without limitation the following:

1. Review BECx Plan and FPT specification.
2. Attend commissioning kick-off meeting and other Building Enclosure Commissioning Team meetings.
3. Incorporate commissioning activities into the construction schedule.
4. Periodically update Commissioning activities in the construction schedule.
5. Notify Commissioner and BECA of work completion.
6. Verify building enclosure materials and assemblies are ready for functional testing.
7. Retain the services of an approved independent BETA; submit qualifications of independent BETA to Commissioner for approval; coordinate all activities and deliverables of this BETA; ensure all BETA deliverables are provided to the Building Enclosure Commissioning Team.
8. Attend all required material and systems testing.
9. Execute all periodic maintenance or repairs required on started systems from initial Mock-up of equipment to Final Acceptance by Commissioner to prevent material warranties from being voided.
10. Submit maintenance logs of all interim maintenance or repair tasks performed by Contractor.
11. Ensure installation work is complete, is in compliance with Contract Documents, and is ready for Functional Performance Testing. FPT test results will be documented by BECA.
12. Ensure resolution of non-compliance and deficiencies in construction or test results. Obtain written documentation of completion from the appropriate Contractors.
13. Provide letters of compatibility for adjacent building enclosure materials and assemblies.

14. Facilitate all repairs and retesting of failed condition at no additional cost to the City of New York.
15. Provide all warranty information to BECA.

D. Responsibilities of the BETA include without limitation the following:
   1. Attend Commissioning kick-off meeting and other Building Enclosure Commissioning Team meetings.
   2. Provide on-site technician and equipment to complete Mock-up and field Functional Performance Testing.
   3. Prepare and submit reports to the Commissioner at the conclusion of all testing.
   4. Perform retesting and prepare corresponding reports.

3.3 BUILDING ENCLOSURE COMMISSIONING TEAM (BECx) MEETINGS

A. BECx meetings will be held periodically, as determined by the Commissioner and recommended by BECA.

B. Discussions held in BECx meetings must include, but not be limited to: system/materials, mock-up/field, progress, scheduling, testing, documentation, deficiencies, and problem resolution.

C. The Contractor must attend BECx meetings, and must ensure the attendance of required subcontractors, as requested.

3.4 REPORTING

A. BECA will provide status reports to the Commissioner. The Commissioner will provide such status reports to the Contactor, CxA, Design Consultant, and other entities as needed.

B. BECA will submit non-compliance and deficiency reports to Commissioner. The Commissioner will provide such reports to the Contractor, CxA, Design Consultant, and other entities as needed.

C. BECA will provide a final summary report to Commissioner and CxA.

3.5 MOCK-UP AND FINAL CONSTRUCTION

A. Prior to Functional Performance Testing or concealment of functional performance layers within the building enclosure, the Contractor must verify that all assemblies are complete, including deficiency long items, and all Contract requirements are met.

3.6 FUNCTIONAL PERFORMANCE TESTING

A. Objectives and Scope
   1. The objective of Functional Performance Testing is to demonstrate that the building enclosure is performing according to documented design intent and Contract Documents. Functional Performance Testing facilitates bringing the building enclosure systems from a state of Substantial Completion to fully operational. Additionally, during Functional Performance Testing, areas of deficient performance are identified and corrected, improving building enclosure system performance.

B. Development of Test Procedures
   1. The purpose of a specific test is to verify and document compliance of the installed enclosure systems with the OPR. Building Enclosure Functional Performance Test Protocols are provided in other sections of the Project Specifications for specific requirements regarding BECx.

C. Coordination and Scheduling
   1. Contractor must provide sufficient notice to BECA, through the Commissioner, regarding completion schedule for materials and systems. Testing to be performed in conjunction with site visits. Contractor must schedule Functional Performance Tests with Commissioning Team. BECA must witness and

document functional testing of equipment and systems. BETA, as retained by the Contractor, must execute tests under direction of BECA.

2. Successful completion of Mock-up functional performance testing must occur prior to full production installation of building enclosure materials and systems.

3.7 DOCUMENTATION, NON-CONFORMANCE, AND APPROVAL OF TESTS

A. Documentation

1. BECA must witness and document results of FPT.

B. Non-Conformance

1. BECA must record results of functional testing. Deficiency or non-conformance issues must be noted and reported to the Commissioner. The Commissioner must provide such non-conformance reports to the CxA, Design Consultant, Contractor, and other entities, as needed.
2. Corrections of minor deficiencies identified may be made during tests at the discretion of the Commissioner and as recommended by the BECA. In such cases, deficiency and resolution must be documented.
3. Every effort must be made to expedite testing and minimize unnecessary delays, while not compromising integrity of tests.
4. Deficiencies are handled in the following manner:
   a) BECA documents deficiencies and notes Contractor's response and intentions. A finding of deficiency will not end the testing process.
   b) BECA submits deficiency report to the Commissioner. The Commissioner will provide such deficiency report to the CxA, Contractor, Design Consultant, and other entities as required.
   c) Contractor corrects deficiency and certifies that material or assembly is ready to be retested.
   d) Contractor informs Commissioner of retesting schedule for coordination with the BECA.
   e) Contractor reschedules test with the Commissioner and BETA at no additional cost to the City of New York.

C. Testing

1. Costs for all testing and retesting required for the Project will be the responsibility of the Contractor. The Contractor is to provide access to the test specimens to the Commissioning Team, through the Commissioner.

3.8 COMMISSIONING DOCUMENTATION

A. Final Report Details

1. Final BECx Report must include an executive summary, list of participants and roles, brief building description, overview of Commissioning and testing scope, and general description of testing and verification methods. Report must contain evaluation regarding:
   a) Conformance to Specifications and design intent.
   b) Material/system installation.
   c) Functional performance.
2. All outstanding non-compliance items must be specifically listed.
3. Recommendations for improvement to system or operations, future actions, etc. must also be listed.

END OF SECTION 01 91 15

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

Department of Design and Construction

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: **PV791-TNC**

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

Department of Design and Construction

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

CONTRACT NO. 1 **HVAC Work**

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
BOROUGH: **New York, NY 10003**
CITY OF NEW YORK

PEN ENTERPRISES INC .
Contractor

Dated MAY 14TH , 2021

Approved as to Form
Certified as to Legal Authority

Acting Corporation Counsel

AS
6/18/20

Dated June 18 , 2020

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20____

Department of Design and Construction

PROJECT ID: **PV791-TNC**

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

30-30 THOMSON AVENUE
LONG ISLAND CITY, NEW YORK 11101-3045
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VOLUME 3 OF 3

ADDENDUM TO THE GENERAL CONDITIONS

SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
BOROUGH: **New York, NY 10003**
CITY OF NEW YORK

CONTRACT NO. 1 **HVAC Work**

FOR: **NYC Departent of Cultural Affairs**

BY: **Cosentini Associates**

Date: **June 4, 2020**

Department of Design and Construction

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

ADDENDUM TO THE GENERAL CONDITIONS FOR SINGLE CONTRACT PROJECTS

The General Conditions are hereby amended in accordance with the terms and conditions set forth in this Addendum.

I. PROJECT DESCRIPTION

FMS #: **PV791-TNC**
PROJECT NAME: **Theater for the New City – HVAC Replacement**

PROJECT DESCRIPTION: This Project consists of the replacement of 1 air handling unit and the installation of 2 new air handling units to provide heating, ventilation, and air conditioning to the lobby area, Johnson Theater, and Theater storage. The project includes new gas piping, smoke detectors for Fire Alarm, and electrical work to support installation of the new air handling units. The new air handling units shall be commissioned by a Commissioning Agent.

PROJECT LOCATION: **155 First Avenue**
BOROUGH: **Manhattan**
CITY OF NEW YORK
ZIP CODE: **10003**
COMMUNITY BOARD #: **103**

LANDMARK STATUS:

DESIGNATED LANDMARK STRUCTURE OR SITE: **NO**
If this is a Designated Landmark Structure or Site, Section 01 3591, Historic Treatment Procedures applies to this project.
LANDMARK QUALITY STRUCTURE: **NO**
If this is a Landmark Quality Structure, Section 01 3591, Historic Treatment Procedures applies to this project.

II. LEED GREEN BUILDING REQUIREMENTS

NOT USED

III. COMMISSIONING REQUIREMENTS

This project includes MEP Commissioning Requirements.

The General Commissioning Requirements for MEP Systems 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

[X] DDC shall publicly bid and enter into all contracts for the Project. DDC shall manage the Project using its own personnel.

[ ] DDC shall publicly bid and enter into all contracts for the Project. A Construction Management firm (the "CM") hired by DDC shall manage the Project. The Contractor is advised that the CM shall serve as the representative of the Commissioner at the site and shall, subject to review by the Commissioner, be responsible for the inspection, management, coordination and administration of the required construction work, as delineated in the article of the Standard Construction Contract 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.

Section	Sub-Section	Sub-Section	Applies	Does not Apply	Applies as Amended
01 1000	1.4 (B)	Scope and Intent / LEED		X	
	1.4(C)	Scope and Intent / Commissioning	X		
01 3216.10		PROJECT SCHEDULES (METHOD A)	X		
01 3216.20		PROJECT SCHEDULES (METHOD B)		X	
01 3216.30		PROJECT SCHEDULES (METHOD C)		X	
	1.6 Q	Cost Loaded Schedule		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	

Section	Sub-Section	Sub-Section	Applies		Does not Apply		Applies as Amended
01 5000	3.8 (B)	DDC Field Office / DDC Field Office Trailer	X				
	3.8 (B-3a)	DDC Field Office / DDC Managed Field Office Trailer			X		
	3.8 (B-3b)	DDC Field Office / CM Managed Field Office Trailer			X		
	3.8 (D)	DDC Field Office / Additional Equipment for the DDC Field Office	X				
	3.13(A-D)	Work Fence Enclosure			X		
	3.17(B)	Project Rendering			X		
	3.18 (A-C)	Security Guards / Fire Guards on Site			X		
01 5411	3.1 (A-J)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Up To and Including 15 Stories			X		
	3.2 (A-M)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Over 15 Stories			X		
	3.3 (A-E)	Temporary Use, Operation and Maintenance of Elevators During Construction for Existing Buildings			X		
01 7300	3.3 (A-I)	Surveys			X		
	3.4 (A-B)	Borings			X		
	3.12 (A-D)	Sleeves and Hangers	X				
	3.13 (A)	Sleeve and Penetration Drawings	X				
	3.15 (A)	Location of Partitions			X		
01 7419	1.5 (C)	Waste Management Performance Requirements / LEED Certification			X		
01 7900		Demonstration and Owner's Pre-Acceptance Orientation			X		
01 8113.03		Sustainable Design Requirements for LEED v3 Buildings			X		
01 8113.04		Sustainable Design Requirements for LEED v4 Buildings			X		
01 8113.13		VOC Limits for Adhesives, Sealants, Paints and Coatings for LEED v3 Buildings			X		
01 8119		Indoor Air Quality Requirements for LEED Buildings			X		
01 9113		General Commissioning Requirements for MEP Systems	X				
01 9115		General Commissioning Requirements for Building Enclosure			X		

ADDITIONAL SECTIONS/SUB-SECTIONS

The Contractor is advised that the additional Sub-Sections set forth below are included in the General Conditions and apply to the Project.

Section 011000 Summary: add the following article:

1.13 Site Coordination

A. Site Coordination

1. Use of the Condo Elevator will not be allowed. Contractor to provide means and methods for transporting construction material up to the roof. Scaffolding on any kind will need to be approved by the Condo Board and Pinks Bar, in addition to the Commissioner.
2. Contractor to provide DDC Resident engineer trailer possibly on 10th street.
3. Theater for the New City will facilitate some storage area to be coordinated with Theater for the New City in advance.
4. Theater for the New City is closed for July and August with no shows (only rehearsals). These two months will be ideal for scheduling critical construction activities.
5. Allowable work hours will be 7am-4pm (clean up 4pm) Monday-Friday and Saturday clean up at 12 noon. No Sunday construction will be allowed. If after hours work is needed, Contractor to coordinate with the Commissioner.

VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

Refer to page 3 of the Bid Booklet in Volume 1 for Special Experience Requirements.

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 "Sole Source Product, 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) The term "manufacturer's warranty" as described in this article encompasses the following terms as indicated in the Specifications: "Manufacturer's Warranty", "Manufacturer's Special Warranty", "Special Warranty", "Special Finish Warranty", "Manufacturer's Special Warranty for a (product, assembly).
(b) 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.
(c) 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.
(d) 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	
Information For Bidders	Department of Design and Construction Safety Requirements	The Contractor must provide the safety personnel as indicated to the right	■ Project Safety Representative □ Dedicated, full-time Project Safety Manager	
Article 14 Contract	Time of Substantial Completion	Consecutive Calendar Days	**480**	
Article 15 Contract	Liquidated Damages	For each consecutive calendar day over completion time	**$400**	
Article 17 Contract	Sub-Contracts	Not to exceed Percent of Contract Price	**50%**	
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 $1,000,000	**10%**
Article 24 Contract	Deposit Guarantee	Percent of Contract Price	**1%**	
Article 24 Contract	Period of Guarantee		See Schedule B of the Addendum to the General Conditions	
Article 74 Contract	Statement of Work		Addenda, numbered: _____	
Article 75 Contract	Compensation to be Paid to Contractor		Amount for which the Contract was Awarded: _____ _____ Dollars ($_____)	
Article 79 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
■ Commercial General Liability Art. 22.1.1	This Contract requires Commercial General Liability Insurance (CGL) that is at least as broad as ISO Form CG 00 01 (see Section 22.1.1 of the New York City Standard Construction Contract). CGL policies that include endorsements that add exclusions to ISO Form CG 00 01 do not comply with the Contract. The Department may, in its sole discretion, accept endorsements that add exclusions, but the Department will generally reject endorsements that add exclusions that exempt all or part of the Work of the Project. For example, if the Project includes Work on a roof of a four-story building, the Department will reject a CGL policy that includes a "Three Story Height Limitation Endorsement." The minimum limits shall be $1,000,000.00 per occurrence and $2,000,000.00 per project aggregate applicable to this **Contract.** Additional Insureds: 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 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). 3. Theater for the New City

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
■ Workers' Compensation Art. 22.1.2 ■ Disability Benefits Insurance Art. 22.1.2 ■ Employers' Liability Art. 22.1.2 □ Jones Act Art. 22.1.3 □ U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.3	Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction. **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. Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. law.
■ 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.
■ 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

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
□ 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. _____
□ 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. _____
□ 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. _____
□ 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 □ Ship Repairers Legal Liability	$_____ each occurrence

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
[OTHER] Art. 22.1.8 □ 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 □ Railroad Protective Liability _____	$_____ per occurrence $_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 ■ Asbestos Liability _____	Only required of the Contractor or Subcontractor performing any required asbestos removal. $1,000,000 each occurrence, $2,000,000 aggregate (Combined Single Limit); only required of the Contractor or Subcontractor performing any required asbestos removal. Additional Insureds: 1. City of New York, including its officials and employees, and 2. Theater for the New City

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.

[OTHER] Art. 22.1.8 □ Boiler Insurance_____	 $200,000
[OTHER] Art. 22.1.8 ■ Professional Liability In the event any section of the Specifications requires the Contractor to engage a Professional Engineer to provide design and/or engineering services, the Engineer engaged by the Contractor, as well as any sub consultant(s) performing professional services, shall provide Professional Liability Insurance.	$1,000,000 per occurrence The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of $1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Agreement arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer. Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART 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 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.

_____

[Name of broker or agent (typewritten)]

_____

[Address of broker or agent (typewritten)]

_____

[Email address of broker or agent (typewritten)]

_____

[Phone number/Fax number of broker or agent (typewritten)]

_____

[Signature of authorized official or broker or agent]

_____

[Name and title of authorized official, broker or agent (typewritten)]

State of ……...)
) ss:
County of ……)

Sworn to before me this

_____ day of _____, 20__

_____

NOTARY PUBLIC FOR THE STATE OF_____

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
230515	Variable Frequency Controllers	2 year
237413	Packaged Rooftop Air Conditioning Units	1.5 years
237413	Packaged Rooftop Air Conditioning Units - Compressors	5 years
237413	Packaged Rooftop Air Conditioning Units – Heat Exchangers	10 years
283100	Fire Alarm Systems – Devices	1 year

(3) Application: The obligations under the warranty for the periods specified above shall apply only to the manufacturer of the material or equipment, and not to the Contractor or its Surety; provided, however, the Contractor retains responsibility for obtaining all required warranties from the manufacturers and delivering the same to the Commissioner.

(4) Other Provisions: The warranty requirements set forth in this Schedule B are also included in the Specifications.

(a) In the event of any conflict between a warranty requirement set forth in the Specifications and a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall take precedence.

(b) In the event a warranty requirement set forth in the Specifications is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications, shall remain in full force and effect

(c) In the event a warranty requirement for a particular item of material or equipment is omitted from both Schedule B and the Specifications, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.

(d) In the event a warranty requirement is provided for a particular item of material or equipment, and such requirement specifies a warranty period that is longer than that which is actually provided by any of the specified manufacturers, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by any of the specified manufacturers, unless otherwise directed in writing by the Commissioner.

(e) Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.

SCHEDULE C

Contract Drawings

(Reference: Section 01 1000, Article 1.5 (A) of the DDC Standard General Conditions)

The Schedule set forth below lists all Contract Drawings for the Project.

Sheet #	Sheet Name
T-001.00	Title Sheet
S-001.00	Structural Notes and Loads
S-101.00	Roof Part Framing Plans
S-210.00	Sections
DM-101.00	First Floor Mechanical Demolition Plan
DM-102.00	Roof Mechanical Demolition Plan
M-001.00	Mechanical notes, Symbols, and Abbreviations
M-101.00	First Floor Mechanical Plan
M-102.00	Roof Mechanical Plan
M-400.00	Mechanical Schedules Sheet
M-500.00	Mechanical Details Sheet #1
DP-301.00	Plumbing First Floor Demolition Plan
DP-302.00	Plumbing Roof Demolition Plan
P-001.00	Plumbing Cover Sheet
P-100.00	Plumbing Cellar Floor Construction Plan
P-101.00	Plumbing First Floor Construction Plan
P-102.00	Plumbing Roof Construction Plan
DE-101.00	Electrical First Floor Demolition Plan
DE-102.00	Electrical Roof Demolition Plan
E-001.00	Electrical Notes, Symbols, and Abbreviations
E-100.00	Electrical Basement Plan
E-101.00	Electrical First Floor Plan
E-102.00	Electrical Roof Plan
E-200.00	Electrical Partial One-Line Diagram
FA-001.00	Fire Alarm Partial Riser, Notes, Symbol & Drawing List
FA-101.00	Fire Alarm First Floor Plan
FA-102.00	First Alarm Roof Plan
H-001.00	Asbestos Abatement Notes
H-002.00	Asbestos Abatement Roof Plan

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)
TS Thermal Switch
MS Magnetic Starter
CMS Comb. Mag. Starter
P Pilot Light
F Firestat
T Thermostat
AL Alternator
BG Break Glass Station
HOA Hand-Off Auto.
PB Push Button Station
RO Remote "off"

Equip. Ident.	Location	# of Units	HP or KW	Volts and Phase	Control Type: See legend above	Remarks:
RTU-1	1st Fl. Roof	1	7.5 HP	208/3	T	
RTU-2	1st Fl. Roof	1	7.5 HP	208/3	T	
RTU-3	1st Fl. Roof	1	3 HP	208/3	T	
EF-1	1st Floor	1	0.135 W	120/1	DB	Controlled by wall switch
EF-2	1st Floor	1	0.135 W	120/1	DB	Controlled by wall switch
EF-3	1st Floor	1	0.135 W	120/1	DB	Controlled by wall switch

SCHEDULE E

Separation of Trades

NOT USED FOR SINGLE CONTRACTS

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DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

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CONTRACT # 3

HVAC and FIRE PROTECTION WORK

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SECTION 02 41 19
SELECTIVE REMOVAL AND DEMOLITION

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 SUSTAINABILITY REQUIREMENTS

A. Sustainability requirements included in the Section are as follows:

1. Refrigerant recovery requirements.

1.3 SUBMITTALS

A. Shop Drawings

1. For that part of the Work that is not considered minor alterations or ordinary repairs, submit shop drawings and associated calculations. Demolition drawings and sequencing shall be signed and sealed by a Professional Engineer licensed in the State of New York.

B. Schedule

1. Submit a schedule indicating proposed methods and sequence of operations for selective removals and demolition Work, prior to commencement of operations

C. Submit details and procedures for dust and noise control.

D. Signed receipt for salvaged items delivered to the Commissioner.

E. Quality Control Submittals

1. Contractor Qualifications

a. Provide proof of Contractor and Professional Engineer qualifications specified under “Quality Assurance”.

b. Provide proof of Refrigerant Recovery Technician qualifications

1.4 PROTECTION, DAMAGES, RESTRICTIONS

A. Protections

1. Provide temporary barricades and other forms of protection required to protect City of New York property, personnel, students and general public from injury due to selective removals and demolition work.

a. Provide protective measures as required to provide free and safe passage of students, City of New York personnel, and the general public.

b. Protect from damage existing finish work that is to remain in place and which becomes exposed during operations.

c. Protect floors with building paper or other suitable covering.

B. Damages

1. Promptly repair any and all damages to all property and finishes caused by the removals and demolition work; to the Commissioner's satisfaction and at no extra cost to the City of New York.

C. Explosives

1. The use of explosives is prohibited.

D. Power-driven Tools (for interior removals and demolition).

1. Only hand-held electric power-driven tools conforming to the following criteria shall be used to cut or drill concrete and masonry:

a. Electric Chiseling Hammer

(i) Power Data 115 Volts AC
7-8 Amps
Three-wire grounded connection

(ii) Percussion 2400-2600 Impacts/Minute

(iii) Type/Size Hand-held (+ 18-inch length)

(iv) Unit Weight 12-15 pounds (minus chisel bit)

b. Electric Hammer Drill

(i) Power Data 115 Volts AC
5-8 Amps
Three-wire grounded connection

(ii) Percussion 2400-3200 Impacts/Minute

(iii) Type/Size Hand-held (+ 18-inch length)

(iv) Unit Weight 12-15 pounds (minus chisel bit)

(v) Speed Data 0-0500 RPM (Under load)

1.5 QUALITY ASSURANCE

A. Qualifications

1. Company specializing in performing the Work of this Section shall have a minimum of 3 years experience and shall have worked on projects of similar size.

2. Preparation of details of demolition of items not constituting minor alterations or ordinary repairs shall be under the direct supervision of and bear the seal of a Licensed Professional Engineer of the State of New York experienced in the design of such work, who shall also be responsible for construction supervision of such.

3. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements

1. Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations and guidelines of safety, health, and anti-pollution regulations. Where more stringent requirements than those contained in the Building Code or other applicable regulations are given in this Section, the requirements of this Section shall govern.

2. Conform to the requirements of "Safety and Health Standards, Subpart P - Excavations, Trenching and Shoring" - OSHA.

PART II – PRODUCTS – NOT APPLICABLE

PART III- EXECUTION

3.1 INSPECTION

A. Prior to commencement of the selective removals and demolition Work, inspect the areas in which the Work will be performed. Determine and list the existing conditions of rooms or area surfaces and equipment. After the Work in each respective area is completed, determine if adjacent surfaces or equipment have been damaged as a result of the Work; if so, the damage shall be corrected at the Contractor's expense.

B. Create a safety zone around the demolition area as per Section BC 3306.2.1 of the 2014 NYC Building Code. Fences/barriers shall be erected to prevent persons other than workers from entering.

3.2 REMOVALS AND DEMOLITION WORK

A. The Contractor shall engage a Professional Engineer licensed in the state of NY to prepare the details and sequencing of the demolition, complying with all items included in Section BC 3306.5, for that part of the Work that does not constitute a minor alteration or ordinary repair (Refer to Section §28-105.4.2 of the NYC Administrative Code for the items that do not constitute minor alterations or ordinary repairs i.e. items that affect structural, fire or health safety).

B. Perform selective demolition Work in a systematic manner and use such methods as are required to complete the Work indicated, and in accordance with requirements of NYC DOB.

C. When walls, partitions, floors, and ceilings (or portions thereof) are indicated to be removed; unless indicated otherwise:

1. Remove all items attached to the surfaces of the construction to be removed.

2. Remove all plumbing piping, fixtures, accessories and rough-in occurring on or in the construction to be removed; cap piping and/or re-route lines as indicated or required.

3. Remove all connectors, piping, ductwork and other HVAC items and accessories occurring on or in the construction to be removed; cap and/or re-route piping and ductwork as indicated or required.

4. Remove all electrical wiring, to include, but not limited to, lighting, communications, alarms and all related appurtenances, conduits, devices, fixtures, and other electrical items and accessories occurring on or in the construction to be removed; disconnect power and remove wiring and conduit back to source.

D. Carefully remove items, equipment and materials to be retained by the Theater for the New City and deliver them to locations indicated in the Article titled "Ownership of Materials".

3.3 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from the removals and demolitions from the building immediately; transport and legally dispose of materials off-site. Disposal method shall be in accordance with City, State, and Federal regulations. Items to be retained by the Theater for the New City shall be delivered to locations indicated in the Article titled "Ownership of Materials".

B. Burning of removed materials is not permitted on the job site.

3.4 CLEAN-UP AND REPAIR

A. Upon completion of removals and demolition Work, remove tools, equipment and all remaining demolished materials from the site.

B. Repair all damaged areas caused by the removals and demolition Work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

C. All areas in which Work was performed under this Section shall be left "broom-clean."

3.5 OWNERSHIP OF MATERIALS

A. All equipment, materials, and items removed shall remain the property of the Theater for the New City, if desired; equipment, material and items not desired to be re-used or retained by the Commissioner shall be removed from the site by the Contractor. The Commissioner will designate which equipment, materials and items will be retained.

END OF SECTION 02 41 19

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SECTION 028013 – GENERAL CONTRACTOR WORK
NOVEMBER 2017 VERSION

ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$15,000.00** for the **General Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. All work shall be done in accordance with the applicable provisions of the rules and regulations of the asbestos control program as promulgated by Title 15 Chapter I of RCNY and New York State Department of Labor Industrial Code Rule 56 cited as 12 NYCRR Part 56, whichever is more stringent as per latest amendments to these laws and as modified herein by these specifications.

D. All disposal of asbestos contaminated material shall be per Local Law 70/85.

E. The asbestos abatement contractor's attention is directed to the fact that certain methods of asbestos abatement are protected by patents. To date, patents have been issued with respect to "negative pressure enclosure" or “negative-air” or "reduced pressure” and "glove bag".

F. The asbestos abatement contractor shall be solely responsible for and shall hold the Department of Design and Construction and the City harmless from any and all damages, losses and expenses resulting from any infringement by the asbestos abatement contractor of any patent, including but not limited to the patents described above, used by the asbestos abatement contractor during performance of this agreement.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The asbestos

abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The general contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the general contractor is responsible for retaining a registered design professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the asbestos abatement

contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must be approved through the Department's Request for Subcontractor Approval, administered by the Agency Chief Contracting Office (ACCO), Vendor Integrity Unit. The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (6) below. 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, demonstrate for the three year period prior to the work that it has been licensed by the New York State Department of Labor (NYSDOL), as an "Asbestos Abatement Contractor". The asbestos abatement contractor shall submit copies of the asbestos abatement contractors NYSDOL License for the past three years

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 submit a list of five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $1,000,000 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number and email address of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work; brief description of the scope of 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, certified 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. The Department may also conduct an inspection of the asbestos abatement contractor's facility to verify if the contractor has equipment and staffing to perform the work.

6. The asbestos abatement contractor must submit a copy of their Corporate Health and Safety Plan for review and acceptance. A Job Hazard Analysis (JHA) for the specific work conducted must be included.

B. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Provide materials or workmanship that meet or exceed the specifically named codes or standards where required by these specifications.

C. Site Investigation: Asbestos abatement contractor shall inspect all the specifications and related drawings, and will investigate and confirm the site conditions affecting the work, including, but not limited to (1) through (5) below. The asbestos abatement contractor will attend a walkthrough site inspection with the department's Project Manager and the Third-Party Air Monitor prior to the work. Such walkthrough will be scheduled at the Department's convenience.

1. Physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstructions encountered in accessing or removing the material.

2. Handling, storage, transportation and disposal of the material.

3. Availability of qualified and skilled labor.

4. Availability of utilities.

5. Exact quantities of all materials to be disturbed and/or removed

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP

Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above.

In the event that the project is not classified as "urgent" the asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the N1OSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).

C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

B. The following information shall be included for each payment request:

1. Description of work performed.

2. Linear footage and pipe sizes involved.

3. Square footage for boiler & breaching insulation removed.

4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.

5. Square footage of encapsulation, sealing, patching, and painting involved.

6. Total cost associated with compliance with the assigned task.

7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.

8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.

9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.

10. Attach a copy of valid workmen compensation insurance.

11. Valid asbestos insurance per occurrence.

12. General liability insurance when required.

C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.

D. EXPOSURE LOG: With this final payment, the asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5”	3”	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9”	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	l4”	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.08, 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 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL: (**including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple

layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

Note 1: CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

Note 2: MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

Note 3: All payments shall be made as described in paragraph 1.09 herein**.**

Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK

PLATFORMS: Provisions are made in this Contract to compensate the asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the asbestos abatement contractor in writing regarding defects in work under the guarantee.

1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the asbestos abatement contractor shall present three copies of the following items:
   a. asbestos abatement contractor’s scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for

approval. Once approved, schedules shall be maintained and updated as received. asbestos abatement contractor shall post a copy of all schedules at the site:

(1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

(2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

(3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Safety Data Sheets (SDS) 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 SDS are reviewed.

g. Worker Training and Medical Surveillance: The asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2” x 11” size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall

contain on title page the project name, name, address and phone number of the asbestos abatement contractor; name, address and phone number of asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.

4. All asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from asbestos abatement contractor, sub-asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

    a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the 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

SECTION 028213
NOVEMBER 2017 VERSION

ASBESTOS ABATEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Contract Documents are as defined in the "Agreement". The General Conditions shall apply to all Work of this Section.

B. Work specified herein shall be the removal and disposal of Asbestos-Containing Materials (ACM) and asbestos-contaminated materials from designated areas of the Theater for the New City, located at 155 First Avenue, New York, NY 10003.

C. The following documents were reviewed and utilized to generate this abatement design specification which serves to locate and quantify the amount of ACM, and asbestos contaminated material, to be abated in support of this project.

1. A set of Issued for DD drawings labeled "Theater for the New City," dated 11/16/18, prepared by Cosentini Associates;
2. Asbestos survey report prepared by Louis Berger & Assoc., P.C. (LBA) dated 01/29/19.

D. The phasing and scheduling of work for this project shall be coordinated with and approved by the Construction Project Manager and Facility Manager. The Construction Project Manager and Facility Manager will make the final determination on all issues under this Contract covered by this Specification.

1.02 SCOPE OF WORK

A. The asbestos abatement contractor is to provide all labor, materials, equipment, services, testing, appurtenances, permits and agreements necessary to perform the work required for the abatement of ACM as required by these contract documents. All work shall be performed in accordance with this Specification, EPA regulations, OSHA regulations, New York City Local Law 70, Title 15, Chapter 1 RCNY, New York State Industrial Code 56, NIOSH recommendations, and any other applicable federal, state or local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

B. The intent of this Specification section is to ensure that the asbestos abatement contractor is responsible for the following:

1. Abatement of all ACM.

2. Cleaning and decontamination of the entire affected area.

3. Demolition that may be required to access ACM in each area, Asbestos abatement contractor shall dispose of all debris associated with demolition activities as ACM waste.

4. Removal and disposal of all ACM found within these areas such as exhaust vent flashing, tar vapor barrier, roof membrane, roof membrane patch, HVAC unit / skylight flashing, exhaust vent flashing and tar on exhaust vent.

5. Provide all scaffolding, platform installation, equipment, tools, transportation and any other equipment required and/or necessary to complete all work described in the Contract Documents.

6. The asbestos abatement contractor shall be responsible for and shall include any and all fees or changes imposed by Local, State or Federal Law, Rule or Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the work.

7. Prior to destructive demolition activities, the DDC may elect to collect bulk samples of assumed asbestos-containing materials and analyze the bulk samples for asbestos content.

C. The asbestos abatement contractor shall perform the following work as described below and indicated on the drawings. The drawings are only a diagrammatic representation of the Work Areas and do not constitute the actual quantities of material. Asbestos abatement contractor is responsible for the confirmation of the actual total quantities of the Work.

1. Drawing H002.00: Roof Plan

a. Remove and dispose of asbestos-containing exhaust vent flashing (black) within **Work Area 1**. Asbestos-containing exhaust vent flashing (black) shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-107 Foam Procedure for Roofing.

b. Remove and dispose of asbestos-containing tar vapor barrier (black) and contaminated roof membrane (black) & roof membrane patch (black/gray), HVAC unit / skylight flashing (black), exhaust vent flashing (black) and tar on exhaust vent (black) within **Work Area 2**. Asbestos-containing tar vapor barrier (black) and contaminated roof membrane (black) & roof membrane patch (black/gray), HVAC unit / skylight flashing (black) and exhaust vent flashing (black) shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-107 Foam Procedure for Roofing. Asbestos-containing tar on exhaust vent

(black) shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-109 Abatement from Vertical Exterior Surfaces.

Work Area	Removal Procedure	Approximate Square Feet (Sq. Ft.)	Approximate Linear Feet (Ln. Ft.)
1	NYC DEP Section § 1-107 Foam Procedure for Roofing	36 Sq. Ft. of Exhaust Vent Flashing (Black) [1]	–
2		250 Sq. Ft. of Tar Vapor Barrier (Black) and Contaminated Roof Membrane (Black) & Roof Membrane Patch (Black/Gray) [1]	–
		50 Sq. Ft. of HVAC Unit / Skylight Flashing (Black) [1]	–
		36 Sq. Ft. of Exhaust Vent Flashing (Black) [1]	–
	NYC DEP Section § 1-109 Abatement from Vertical Exterior Surfaces	10 Sq. Ft. of Tar on Exhaust Vent (Black) [1]	–

Note: [1] Approximate quantity affected by current scope of work.

D. The facility is under the jurisdiction of the New York City Department of Cultural Affairs. The asbestos abatement contractor shall perform the work of this contract in a manner that will be least disruptive to the normal use of the building.

E. Asbestos abatement contractor's attention is directed to the fact that patents cover certain methods of asbestos abatement indicated in the specifications. To date, patents have been issued with regard to negative pressure enclosures or negative or reduced pressure and glove-bag.

F. Asbestos abatement contractor shall be solely responsible for and shall hold the City of New York Department of Design and Construction and the City harmless from, any and all damages, losses and expenses resulting from any infringement by Asbestos abatement contractor of any patent, including but not limited to the patents described above, used by Asbestos abatement contractor during performance of this agreement.

G. Prior to starting, the asbestos abatement contractor must notify the Commissioner of the City of New York Department of Design and Construction if he anticipates any difficulty in performing the work as directed and required by these Specifications. Asbestos abatement contractor shall be required to attend an on-site job meeting with the Construction Project Manager prior to start of work to

examine conditions of the site for removal and plan the sequence for removal operations.

H. The asbestos abatement contractor shall retain a certified Project Designer for the preparation of an Asbestos Variance Application (ACP-9), if required.

I. The asbestos abatement contractor shall be responsible for preparing and submitting all filings, notifications, amendments and variances, etc. required by all City, State and Federal regulatory agencies having jurisdiction, at no additional cost to the NYC DDC.

J. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to prepare a Work Place Safety Plan (WPSP), if required.

K. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to perform final inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required under Chapter 17 of the Building Code. Such special inspections and A-TR1 forms shall be completed by the Registered Design professional.

L. For coordination with other Asbestos abatement contractors, see the General Conditions governing all Contracts.

M. Related Asbestos Removal Work Under Other Contracts:

1. Each asbestos abatement contractor shall be responsible for the removal of incidental asbestos not identified in this section and found prior to or during the Work.

2. Incidental asbestos is defined as ACM that is discovered during the course of their work that must be abated to enable them to perform the work of their Contract.

N. Work Hours:

1. The asbestos abatement contractor shall establish his work schedule in a way that avoids interference or conflict with the normal functioning of the facility. Work in the evenings shall be done at no additional cost to the City.

2. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work other than regular working hours and such authorization is granted by the Commissioner

(Regular working hours are those during which any given facility in which work is to be done is customarily open and functioning). If such work schedule is authorized by the Commissioner the work shall be done at no additional cost to the City.

3. The order of phases and start dates associated with each will be determined by the Construction Project Manager.

4. Asbestos abatement contractor shall be required to schedule waste transfer during evening hours, when activity within the facility is at a minimum. Evening hours are defined as 6:00 p.m. to 6:00 a.m. Waste transfer must be approved by the Construction Project Manager and Facility Manager.

O. The following conditions shall apply to all temporary shutdowns of existing services:

1. All temporary lighting and temporary electrical services for use in the Work Area shall be in weather proof enclosures and be ground fault protected and:

a. Shall be performed at no additional charge to the City.

2. Shall be performed at times not interfering with the other activities in the building.

3. Shall be performed only with written consent from the Commissioner and the Facility Manager.

4. Shall be made through written request to the Commissioner at least 10 days in advance with complete written description of the work to be performed.

P. Stages of Asbestos Removal Work:

1. The asbestos abatement contractor will be required to perform the work and it is the intent of this Specification to remove all asbestos containing and asbestos contaminated materials from the Work Area. The asbestos abatement contractor is responsible for verifying all quantities of materials listed.

Q. Certain equipment in the Work Area may need to remain operational during removal. Therefore, the removal of ACM from this equipment shall be performed as the last removal activities within the Work Area. The Asbestos abatement contractor shall coordinate the scheduling for the removal of ACM on functioning equipment with the Construction Project Manager.

1.03 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must be approved through the Department's Request for Subcontractor Approval, administered by the Agency Chief Contracting Office (ACCO), Vendor Integrity Unit. The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (6) below. 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, demonstrate for the three year period prior to the work that it has been licensed by the New York State Department of Labor (NYSDOL), as an "Asbestos Abatement Contractor". The asbestos abatement contractor shall submit copies of the asbestos abatement contractors NYSDOL License for the past three years

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 submit a list of five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $1,000,000 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number and email address of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work; brief description of the scope of 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, certified 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. The Department may also conduct an inspection of the asbestos abatement contractor's facility to verify if the contractor has equipment and staffing to perform the work.

6. The asbestos abatement contractor must submit a copy of their Corporate Health and Safety Plan for review and acceptance. A Job Hazard Analysis (JHA) for the specific work conducted must be included.

B. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Provide materials or workmanship that meet or exceed the specifically named codes or standards where required by these specifications.

C. Site Investigation: Asbestos abatement contractor shall inspect all the specifications and related drawings, and will investigate and confirm the site conditions affecting the work, including, but not limited to (1) through (5) below. The asbestos abatement contractor will attend a walkthrough site inspection with the department's Project Manager and the Third-Party Air Monitor prior to the work. Such walkthrough will be scheduled at the Department's convenience.

1. Physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstructions encountered in accessing or removing the material.

2. Handling, storage, transportation and disposal of the material.

3. Availability of qualified and skilled labor.

4. Availability of utilities.

5. Exact quantities of all materials to be disturbed and/or removed.

1.04 WORK BY OTHERS

The City reserves the right during the term of this Contract to have work performed on asbestos abatement projects by other asbestos abatement contractors as the situation warrants.

1.05 DEFINITIONS

A. General Explanation: Certain terms used in this Specification Section are defined below. Definitions and explanations of this Specification Section are not necessarily complete or exclusive, but are general for the Work to the extent they are not stated more explicitly in another element of the Contract Documents.

B. Definitions in General Use:

1. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Asbestos abatement contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in Contract Documents. In no case will "approval" by Engineer be interpreted as a release of Asbestos abatement contractor from responsibilities to fulfill requirements of Contract Documents.

2. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Engineer," "requested by Engineer," and similar phrases. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Asbestos abatement contractor's responsibility for construction supervision.

3. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

4. Indicated: The term "indicated" is a cross-reference to graphic representations, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

5. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.

6. Installer: The term "installer" is defined as the entity (person or firm) engaged by the asbestos abatement contractor, or its sub-asbestos abatement contractor for performance of a particular unit of work at Project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.

7. Provide: Except as otherwise defined in greater detail, term “provide” means furnish and install, complete and ready for intended use, as applicable in each instance.

8. Third-Party Air Monitor: The term “Third-Party Air Monitor ” is defined as an entity engaged by City and Construction Project Manager to perform

specific inspections or tests of the work, either at Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

C. Definitions Relative to Asbestos Abatement:

1. Abatement: Any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure, cleanup and repair.

2. Adequately Wet: The complete penetration of a material with amended water to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then the material has not been adequately wetted. However, the absence of visible emissions is not evidence of being adequately wet. ACM must be fully penetrated with the wetting agent in order to be considered adequately wet. If the ACM being abated is resistant to amended water penetration, wetting agent shall be applied to the material prior to and during removal as necessary to minimize fiber release.

3. Aggressive Sampling: Method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

4. AHERA: Asbestos Hazard Emergency Response Act of 1986

5. AIHA: American Industrial Hygiene Association.

6. Airlock: System for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

7. Air Sampling: Process of measuring the fiber content of a known volume of air collected during a specific period. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400, or the provisional transmission electron microscopy methods developed by the US EPA which is utilized for lower detection levels and specific fiber identification.

8. Ambient Air Monitoring: “Ambient air monitoring” shall mean measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.

9. Amended Water: Water to which a surfactant has been added.

10. ANSI: American National Standards Institute

11. Area Air Sampling: Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

12. Asbestos: Any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

13. Asbestos-Containing Material (ACM): Asbestos or any material containing more than one-percent asbestos.

14. Asbestos-Containing Waste Material: ACM, asbestos-contaminated objects or debris associated with asbestos abatement requiring disposal.

15. Asbestos-Contaminated Objects: Any objects which have been contaminated by asbestos or asbestos-containing material.

16. Asbestos Assessment Report: "Asbestos Assessment Report" shall mean the "Form ACP-5" form, as approved by NYCDEP, by which a NYCDEP-certified asbestos investigator certifies that a building or structure (or portion thereof) is free of ACM or the amount of ACM to be abated constitutes a minor project.

17. Asbestos Handler: Individual who disturbs, removes, repairs, or encloses asbestos material. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.

18. Asbestos Handler Supervisor: Individual who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.

19. Asbestos Investigator: An individual certified by NYCDEP as having successfully demonstrated his or her ability to identify the presence of and evaluate the condition of asbestos in a building or structure.

20. Asbestos Project: Any form of work performed in a building or structure which will disturb (e.g., remove, enclose, encapsulate) asbestos-containing material.

21. ASTM: American Society for Testing and Materials.

22. Asbestos Project Notification: The “Form ACP-7” asbestos project notification form as approved by DEP.

23. Authorized Visitor: Authorized visitor shall mean the building owner and his/her representative, and any representative of a regulatory or other agency having jurisdiction over the project.

24. Building Owner: Person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.

25. Building Materials: Any and all manmade materials, including but not limited to interior and exterior finishes, equipment, bricks, mortar, concrete, plaster, roofing, flooring, caulking, sealants, tiles, insulation, and outdoor paving such as sidewalks, paving tiles and asphalt.

26. Certified Industrial Hygienist (CIH): Individual with a minimum of five years experience as an industrial hygienist and who has successfully completed both levels of the examination administered by the American Board of Industrial Hygiene and who is currently certified by that board.

27. Certified Safety Professional (CSP): Individual having a bachelor's degree from an accredited college or university and a minimum of four years experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified by that board.

28. Chain of Custody: “Chain of Custody” shall mean the form or set of forms that document the collection and transfer of a sample.

29. City: City of New York

30. Clean Room: An uncontaminated area or room that is part of worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.

31. Clearance Air Monitoring: Employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers and shall be performed as the final abatement activity.

32. Commissioner: shall mean the head of the Agency that has entered into this contract or his/her duly authorized representative.

33. Competent Person: Shall mean the designated person as defined by OSHA in 29 CFR1926.1101.

34. Curtained Doorway: Device that consists of at least three overlapping sheets of fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

35. Decontamination Enclosure System: Series of connected rooms, separated from the Work Area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.

36. Demolition: The dismantling or razing of a building, including all operations incidental thereto (except for asbestos abatement activities), for which a demolition permit from the New York City Department of Buildings is required.

37. Department: shall mean the New York City Department of Design and Construction (DDC).

38. NYCDEP or DEP: The New York City Department of Environmental Protection.

39. Disturb: Any action taken which may alter, change, or stir, such as but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.

40. DOB: The New York City Department of Buildings.

41. Egress: A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

42. ELAP: Environmental Laboratory Approval Program administered by the New York State Department of Health.

43. Encapsulant (sealant) or Encapsulating Agent: Liquid material which can be applied to ACM and which temporarily controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of

the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

44. Encapsulation: The coating or spraying of asbestos-containing material encapsulant. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

45. Enclosure: Construction of airtight walls and/or ceilings between ACM and the facility environment, or around surfaces coated with ACM, or any other appropriate procedure as determined by the NYCDEP which prevents the release of asbestos fibers.

46. EPA or USEPA: United States Environmental Protection Agency.

47. Equipment Room: Contaminated area or room that is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

48. Exit: That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction to provide a protected path of egress travel between the exit access and the exit discharge.

49. FDNY: The Fire Department of the City of New York.

50. Fiber: An acicular single crystal or a similarity elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.

51. Fixed Object: A unit of equipment, furniture, or other item in the work area which cannot be removed from the work area. Fixed objects shall include equipment, furniture, or other items that are attached, in whole or in part, to a floor, ceiling, wall, or other building structure or system or to another fixed object and cannot be reasonably removed from the work area. Fixed objects shall also include pipes and other equipment inside the work area which are not the subject of the asbestos project. Active fire suppression system components shall not be considered fixed objects.

52. Glovebag technique: shall mean a method for removing asbestos-containing material from heating, ventilation and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces. The

glovebag assembly is a manufactured device consisting of a large bag (constructed of at least 6-mil transparent plastic), two inward-projecting long sleeve gloves, one inward-projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process.

53. HEPA-Filter: High efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.

54. HEPA vacuum equipment: "HEPA vacuum equipment" shall mean vacuuming equipment with a HEPA filter.

55. Holding Area: Chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

56. Homogeneous Work Area: Portion of the Work Area that contains one type of ACM and/or where one type of abatement is used.

57. Industrial Hygiene: Science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among worker or among the citizens of the community.

58. Industrial Hygienist: Individual having a college or university degree or degrees in Engineering, Chemistry, Physics or Medicine, or related Biological Sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities:

    a. To recognize the environmental factors and to understand their effect on people and their well being; and

    b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being; and

    c. To prescribe methods to eliminate, control, or reduce such stresses when necessary to alleviate their efforts.

59. Isolation Barrier: The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas and to contain asbestos fibers in the work area.

60. Large Asbestos Project: Asbestos project involving the disturbances (e.g., removal, enclosure, encapsulation) of 260 linear feet or more of ACM or 160 square feet or more of ACM.

61. Log: An official record of all activities that occurred during the project. At a minimum, the log shall identify the building owner, agent, asbestos abatement contractor, and workers, and other pertinent information including daily activities, cleanings and waste transfers, names and certificate numbers of asbestos handler supervisors and asbestos handlers; results of inspections of decontamination systems, barriers, and negative pressure ventilation equipment; summary of corrective actions and repairs; work stoppages with reason for stoppage; manometer readings at least twice per work shift; daily checks of emergency and fire exits and any unusual events.

62. Minor Project: A project involving the disturbance (e.g., removal, enclosure, encapsulation, repair) of 25 linear feet or less of asbestos containing material or 10 square feet or less of asbestos containing material.

63. Movable Object: Unit of equipment or furniture in the Work Area that can be removed from the Work Area.

64. Negative Air Pressure Equipment: Portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the Work Area.

65. NESHAPS: National Emission Standards for Hazardous Air Pollutants.

66. NFPA: The National Fire Protection Association.

67. NIOSH: National Institute for Occupational Safety and Health.

68. DEP or NYCDEP: New York City Department of Environmental Protection

69. NYSDOL: New York State Department of Labor.

70. NYSDOL ICR 56: “NYSDOL ICR 56” shall mean Part 56 of the Official Compilation of Codes, Rules and Regulations of the State of New York or 12 NYCRR Part 56.

71. NYSDOH: The New York State Department of Health.

72. Obstruction: The blocking of a means of egress with any temporary structure or barrier. A double layer of fire-retardant 6-mil polyethylene sheeting shall not be considered an obstruction when it is prominently marked as an exit with photo luminescent signage or paint and cutting tools (knife, razor) are attached to the work area side of the sheeting for use in the event that the sheeting must be cut to permit egress. A corridor shall not be considered obstructed when there is a clear path measuring at least three (3) feet wide.

73. Occupied Area: Area of the work site where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.

74. OSHA: Occupational Safety and Health Administration.

75. Outside air: “Outside air” shall mean the air outside the work place.

76. Person: Individual, partnership, company, corporation, association, firm, organization, governmental agency, administration, or department, or any other group of individuals, or any officer or employee thereof.

77. Personal Air Monitoring: Method used to determine employees' exposure to airborne asbestos fibers. The sample is collected outside the respirator in the worker's breathing zone.

78. Personal Protective Equipment (PPE): Appropriate protective clothing, gloves, eye protection, footwear, and head gear.

79. Phase Contrast Microscopy (PCM): The measurement protocol for the assessment of the fiber content of air. (NIOSH Method 7400).

80. Physician: Person licensed or otherwise authorized under Article 131 Section 65.22 of the New York State Education Law.

81. Plasticize: To cover floors and walls with fire retardant plastic sheeting as herein specified or by using spray plastics as acceptable to the Department.

82. Polarized Light Microscopy (PLM): The measurement protocol for the assessment of the asbestos content of bulk materials. (Interim Method for the Determination of Asbestiform Materials in Bulk Insulation Samples- 40 CFR Part 763, Subpart F, Appendix A as amended on September 1, 1982)

83. Project Designer: A person who holds a valid Project Designer Certificate issued by the New York State Department of Labor.

84. Project Monitor: A person who holds a valid Project Monitor Certificate issued by the New York State Department of Labor.

85. Qualitative Fit Test: Individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face-piece. Acceptable methods include irritant smoke test, odorous vapor test, and taste test.

86. Quantitative Fit Test: Exposing the respiratory wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face-piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the test.

87. Registered Design Professional: A person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York.

88. Removal: Stripping of any asbestos- containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.

89. Renovation: An addition or alteration or change or modification of a building or the service equipment thereof, that is not classified as an ordinary repair as defined in §27-125 of the Administrative Code of the City of New York.

90. Repair: Corrective action using specified work practices (e.g., glovebag, plastic tent procedures, etc.) to minimize the likelihood of fiber release from minimally damaged areas of ACM.

91. Replacement material: Any material used to replace ACM that contains less than .01 percent asbestos.

92. Shift: A worker’s, or simultaneous group of workers’, complete daily term of work.

93. Shower Room: Room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

94. Small Asbestos Project: Asbestos project involving the disturbance (e.g., removal, enclosure, encapsulation) of more than 25 and less than 260 linear feet of ACM or more than ten and less than 160 square feet of ACM.

95. Staging Area: Work Area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the Work Area.

96. Strip: To remove asbestos materials from any part of the facility.

97. Structural Member: Load-supporting member of a facility, such as beams and load-supporting walls, or any non-load-supporting member, such as ceiling and non-load-supporting walls.

98. Surface barriers: The plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.

99. Surfactant: Chemical wetting agent added to water to improve penetration.

100. Transmission Electron Microscopy (TEM): The measurement protocol for the assessment of the asbestos fiber content of air. Interim Transmission Electron Microscopy Analytical Methods-40 CFR Part 763, Subpart E, Appendix A.

101. Visible Emissions: Emissions containing particulate material that are visually detectable without the aid of instruments.

102. Washroom: Room between the Work Area and the holding area in the equipment decontamination enclosure system where equipment and waste containers are wet cleaned and/or HEPA-vacuumed prior to disposal.

103. Waste decontamination enclosure system: “Waste decontamination enclosure system” shall mean the decontamination enclosure system designated for the controlled transfer of materials and equipment, consisting of a washroom and a holding area.

104. Wet Cleaning: “Wet cleaning” shall mean the removal of asbestos fibers from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.

105. Wet methods: “Wet methods” shall mean the use of amended water or removal encapsulants to minimize the generation of fibers during ACM disturbance.

106. Work Area: Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take(s) place.

107. Worker Decontamination Enclosure System: Portion of a decontamination enclosure system designed for controlled passage of workers and authorized visitors, consisting of a clean room, a shower room, and an equipment room separated from each other and from the Work Area by airlocks and curtained doorways.

108. Work Place: The work area and the decontamination enclosure system(s).

109. Work Place Safety Plan: Construction documents prepared by a registered design professional and submitted for review by DEP in order to obtain an asbestos abatement permit. Such plan shall include, but not be limited to, plans, sections, and details of the work area clearly showing the extent, sequence, and means and methods by which the work is to be performed.

110. Work Site: Premises where abatement activity is being performed. May be composed of one or more Work Areas.

1.06 STANDARD OPERATING PROCEDURES

A. Develop and implement a written standard procedure for abatement work to ensure maximum protection and safeguard from asbestos exposure of the workers, visitors, employees, public, and environment.

B. TELEPHONE DEVICE

The asbestos abatement contractor or his authorized representative shall, at all times during the normal workday or during periods of overtime work under this Contract, carry a mobile cellular telephone capable of transmitting photographs and data. He/she shall supply the Department of Design and Construction with the phone number for the device and he/she is liable to respond back to the calls from DDC within the next one (1) hour period after he/she receives calls from DDC. The cost to the asbestos abatement contractor for this device and all charges accruing thereto is deemed included in the work.

C. The standard operating procedure shall ensure:

1. Tight security from unauthorized entry into the workspace.

2. Restriction of asbestos abatement contractor's personnel to the immediate Work Area and access/egress routes.

3. Donning of proper protective clothing and respiratory protection prior to entering the Work Area.

4. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or in any way breaking the respiratory protection.

5. Proper exit practices from the work space to the outside through the showering and decontamination facilities.

6. Removing asbestos in a way that minimizes release of fibers.

7. Packing, labeling, loading, transporting, and disposing of contaminated material in a way that minimizes exposure and contamination.

8. Emergency evacuation procedures, for medical or safety situations, to minimize the potential exposure to airborne asbestos fibers for emergency personnel, building occupants, and building environment.

9. Safety from accidents in the workspace, especially from electrical shocks, fall hazards associated with scaffolding, slippery surfaces, and entanglements in loose hoses and equipment.

10. Provisions for effective supervision, air monitoring and personnel monitoring for exposure during the work.

11. Engineering controls that minimize exposure to fibers within the workspace.

12. The asbestos abatement contractor shall provide a 24-hour fire watch throughout the entire term of the project, to protect against fire and unauthorized entry into the workspace when required by the NYCDEP. Fire watch shall be performed by an individual who is a certified asbestos worker capable of entering the Work Area for regular inspections.

D. Provide an Asbestos Handler Supervisor to provide continuous supervision of all work, and to be responsible for the following:

1. Ensure that individuals are using proper personal protective equipment, are trained in its use and hold valid NYCDEP and NYSDOL Asbestos Handler certificates.

2. Maintain entry log records and ensure that they are recorded in accordance with the provisions of Title 15, Chapter 1 of RCNY and NYSDOL ICR 56.

3. Surveillance of the Work Areas at a minimum of once per work shift or as required by Title 15, Chapter 1 of RCNY and NYSDOL ICR 56 -7.3, to ensure the integrity of work place isolation, negative pressure equipment and workers personal protective equipment is not torn or ripped and that respiratory protection is worn at all times.

4. Ensure that sufficient personal protective equipment is stored in the clean room.

5. Take precautions to prevent heat stress. Precautions include, but are not limited to, selecting lightweight protective clothing, reducing the work rate, and providing adequate fluid breaks.

6. Perform work area inspection with project monitor prior to the commencement of final clearance air monitoring.

7. The asbestos abatement contractor shall retain the asbestos handler supervisor to perform a visual inspection prior to the post-abatement clearance air monitoring to confirm that all containerized waste has been removed from work and holding areas and there is no visible ACM debris or residue on or about all abated surfaces.

E. ENGINEERING CONTROLS

1. All asbestos projects shall utilize negative pressure ventilation equipment.

   a. The asbestos abatement contractor shall use a manometer to document the pressure differential. The asbestos abatement contractor shall install and make the manometer operational once the negative pressure has been established in the work area. Magnahelic manometers shall be calibrated at least every six months and a copy of the current calibration certification shall be available at the work site.

2. Negative pressure ventilation equipment shall be installed and operated to provide at least one air change in the work area every 15 minutes. Where there are no floor or wall barriers because floor or wall material is being abated, there shall be at least one air change in the work area every ten minutes.

3. The negative pressure ventilation equipment shall operate continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off, adjacent areas shall be monitored for asbestos fibers.

4. A static negative air pressure of 0.02 inches (minimum) water column shall be maintained at all times in the work place during abatement to ensure that contaminated air in the Work Area does not filter back to uncontaminated areas.

5. If the contaminated area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors, the cut off switch shall be able to turn off the equipment on all floors.

6. On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure ventilation equipment is operating again.

7. Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.

    a. All openings (including but not limited to operable windows, doors, vents, air intakes or exhausts of any mechanical devices) less than 15 feet from the exterior exhaust duct termination location shall be plasticized with two layers of fire retardant 6-mil polyethylene sheeting, or a second negative pressure ventilation unit with the primary unit's capacity shall be connected in series prior to exhausting to the outside.

    b. Negative pressure ventilation equipment shall exhaust away from areas accessible to the public.

    c. All ducting shall be sealed and braced or supported to maintain airtight joints. Ducts shall be reinforced and shall be installed so as to prevent breakage. Damage to ducts must be repaired immediately.

8. Where ducting to the outside is not possible, a second negative pressure ventilation unit compatible with the primary unit's capacity shall be connected in series. The area receiving the exhaust shall have sufficient, non-recycling exhaust capacity to the outside of the structure.

9. In the event that there is a failure of the containment system or a breach in the Isolation Barriers, all abatement work will cease and the asbestos abatement contractor will immediately correct the condition. Abatement work will not resume until the Work Area has been smoke tested by the third party laboratory and approved by the Construction Project Manager.

F. LOCKDOWN ENCAPSULATION PROCEDURES

1. The following procedures shall be followed to seal in non-visible residue while conducting lockdown encapsulation on all surfaces from which ACM has not been removed:

   a. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA Contract shall be used for lockdown encapsulation.

   b. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon unless reviewed and approved by DEP.

   c. Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.

   d. Encapsulants shall be applied using airless spray equipment. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

   e. The cleaned layer of the surface barriers shall be removed from walls and floors.

   The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

1.07 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS, AND POSTERS

A. The asbestos abatement contractor shall submit an Asbestos Project Notification (ACP-7) to the NYCDEP listing each work area within the building separately one week in advance of the start of work.

B. The registered design professional shall obtain an asbestos abatement permit authorizing the performance of construction work as required for asbestos projects involving one or more of the following activities:

   1. Obstruction of an exit door leading to an exit stair or the exterior of the building;

2. Obstruction of an exterior fire escape or access to that fire escape;

3. Obstruction of a fire-rated corridor leading to an exit door;

4. Removal of handrails in an exit stair or ramp;

5. Removal or dismantling of any fire alarm system component including any fire alarm-initiating device (e.g., smoke detectors, manual pull station);

6. Removal or dismantling of any exit sign or any component of the exit lighting system, including photo luminescent exit path markings;

7. Removal or dismantling of any part of a sprinkler system including piping or sprinkler heads;

8. Removal or dismantling of any part of a standpipe system including fire pumps or valves;

9. Removal of any non-load bearing / non-fire-rated wall (greater than 45 square feet or 50 percent of a given wall);

10. Any plumbing work other than the repair or replacement of plumbing fixtures;

11. Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray-on fire resistance rated materials;

12. Removal of any fire damper, smoke damper, fire stopping material, fire blocking, or draft stopping within fire-resistance rated assemblies or within concealed spaces;

13. Any work that otherwise requires a permit from the DOB (full demolitions, alterations, renovations, modifications or plumbing work).

C. The asbestos abatement contractor shall provide a floor plan showing the areas of the building under abatement and the location of all fire exits in said areas. It shall be prominently posted in the building lobby or comparable location, along with a notice stating the location within the building of the negative air cutoff switch, if applicable.

D. When one or more of the activities listed in 1.07 (B) (1-8) and (B)(13) of this specification an asbestos abatement permit is required by DEP. The general contractor is responsible for submitting, a work place safety plan (WPSP) and any other applicable construction documents. These documents must be prepared and sealed by a registered design professional.

E. A WPSP is not required for projects requiring an asbestos abatement permit due to one or more of the activities listed in 1.07 (B) (9-12) of this specification. The asbestos abatement contractor shall submit, together with the asbestos project notification, all applicable asbestos abatement permit construction documents.

F. The general contractor shall retain a Registered Design Professional to perform the inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required by Chapter 17 of the Building Code, as follows:

1. A final inspection shall be performed by a registered design professional retained by the general contractor after all work authorized by the asbestos abatement permit is completed. The person performing the inspection shall note all failures to comply with the provisions of the Building Code or approved asbestos abatement permit and shall promptly notify the owner in writing. All defects noted in such inspection shall be corrected. The final inspection report shall either:

a. Confirm:

(1) That the construction work is complete, including the reinstallation or reactivation of any building fire safety or life safety component.

(2) That any defects previously noted have been corrected.

(3) That all required inspections were performed.

(4) That the work is in substantial compliance with the approved asbestos abatement permit construction documents, the Building Code, and other applicable laws and rules.

b. Confirm:

(1) That the construction work does not return the building (or portion thereof) affected by the abatement project to a condition compliant with the building code and other applicable laws and rules, but that the registered design professional has reviewed an application for asbestos abatement permit construction documents approval that has been approved by the department of buildings, and the subsequent scope of work as approved will, upon completion, render all areas affected by the asbestos project in full compliance with the building code and all applicable laws and rules.

(2) That any defects previously noted that are not addressed by the subsequent scope of work as approved by the department of buildings, have been corrected.

(3) That all required inspections that are not addressed by the subsequent scope of work as approved by the department of buildings were performed.

(4) That all completed work pursuant to an asbestos abatement permit is in substantial compliance with the approved asbestos abatement permit construction documents.

G. The Registered Design Professional shall provide the final inspection reports to be filed with DEP on A-TR1 form. Records of final inspections made by registered design professionals shall be submitted to DDC as part of the close out document package.

H. Erect bilingual (English-Spanish) warning signs around the work space and at every point of potential entry from the outside and at main entrance to building which can be viewed by the public without obstruction, in accordance with OSHA 29 CFR 1926.1101 (K) (Sign Specifications) and Title 15, Chapter 1 of RCNY. The warning signs shall be a bright color so that they will be easily noticeable. The size of the sign and the size of the lettering shall be no less than OSHA requirements.

I. Provide the required labels for all polyethylene bags and all drums utilized to transport contaminated material to the landfill in accordance with OSHA 29 CFR 1926.1101 (K)(2) and by 49 CFR Parts 171 and 172 of the Department of Transportation regulations.

J. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. Post in a prominent and convenient place for the workers a copy of the latest applicable regulations from OSHA, EPA, NIOSH, State of New York and New York City and any additional items mandated for posting by the aforementioned regulations.

K. Furnish all permits, variances and notices required to perform the Work.

1.08 EMERGENCY PRECAUTIONS

A. Establish emergency and fire exits from the Work Area. The clean side of all emergency exits shall be equipped with two full sets of protective clothing and respirators at all times.

B. Notify local medical emergency personnel, both ambulance crews and hospital emergency room staff prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen.

C. Prepare to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated immediately for decontamination. When an injury occurs, precautions shall be taken to reduce airborne fiber concentrations (i.e., misting of the air with water) until the injured person has been removed from the Work Area.

D. Notify, before actual removal of the asbestos material, the local police and fire departments to the danger of entering the Work Area. Asbestos abatement contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

1.09 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the Department. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the asbestos abatement contractor shall present three copies of the following items, bound and indexed. The detailed plan of action must be submitted at least five (5) days prior to the pre-construction meeting.

   a. Asbestos abatement contractor’s scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of

refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

(2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

(3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

(4) A schedule of equipment to be used including numbers and types of all major equipment such as HEPA Air Filtration Units, HEPA-vacuums, airless sprayers, Water Atomizing Devices and Type "C" compressors.

e. A written plan and shop drawings for preparation of work site and decontamination chamber.

f. Description of protective clothing and approved respirator to be used, make, model, NIOSH approval numbers.

g. Delineation of responsibility of work site supervision, including competent person, with names, resumes, and home telephone numbers.

h. Explanation of decontamination sequence and isolation techniques.

i. Description of specific equipment to be utilized, including make and model number of air filtration devices, vacuums, sprayers, etc.

j. Description of any prepared methods, procedures, techniques, or equipment other than those specified in the Contract Documents.

k. Explanation of the handling of asbestos contaminated wastes including EPA and NYCDEC identification numbers of Waste Hauler.

l. Description of the final clean-up procedures to be used.

m. Name and qualifications of asbestos abatement contractor's Air Monitor including AIHA accreditation, and proof of NIOSH PAT and NIST/NVLAP Bulk Quality Assurance Proficiency of OSHA samples for approval by the City of New York Department of Design and Construction.

n. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

o. Safety Data Sheets (SDS) 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 SDS are reviewed.

p. Worker Training and Medical Surveillance: Asbestos abatement contractor shall submit a list of the NYSDOL and NYCDEP Asbestos supervisors and handlers who will work on this project. Present evidence that workers have received proper training required by the regulations and required by OSHA 29 CFR 1926.1101 (Asbestos Standard) and 1926.1200 (HAZCOM standard) and any other standards applicable to the work.

q. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2” x 11” size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain all information specified in ICR56-3.4 (a)(2)(i).

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit a copy of the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

(3) Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:
Submit copies of the following items to the Construction Project Manager during the work:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager at weekly progress meetings.

4. All asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from asbestos abatement contractor, Sub-asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

    a. Fully executed disposal certificates and transportation manifest.

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 consist of:

    a. Copies of licenses of all asbestos abatement contractors involved in the project;

    b. Copies of DEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

    c. Copies of all project notifications and reports filed with DEP, NYSDOL and EPA for the project, with any amendments or variances;

    d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

    e. A copy of the air sampling log and all air sampling results;

    f. A copy of the abatement asbestos abatement contractor's daily log book;

    g. All data related to bulk sampling including the results of any asbestos surveys performed by an asbestos investigator;

    h. Copies of all asbestos waste manifests;

    i. A copy of all Project Monitor's Reports (ACP-15).

    j. A copy of each ATR-1 Form completed for the asbestos project (if required).

    k. A copy of each Asbestos Project Conditional Closeout Report (ACP-20).

    l. A copy of the Asbestos Project Completion Form (ACP-21).

    m. A copy of the project record shall be submitted to DDC and its Third Party Air Monitor within 48 hours of the Issuance of the ACP-21 form, as part of the close out documents.

9. The asbestos abatement contractor shall submit one of the following certifications to the general contractor, with a copy provided to DDC:

a. Asbestos Project Completion Form. If an asbestos project has been performed, a copy of the asbestos project completion form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

b. An Asbestos Project Conditional Close-out Form. If an asbestos project has been performed a copy of the asbestos project conditional close-out form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

1.10 QUALITY ASSURANCE

A. All work required for the completion of this project or called for in this Specification must be executed in a workmanlike manner by using the appropriate methods established by regulatory requirements and/or industrial standards. All workmanship or work methods are subject to review and acceptance by the Construction Project Manager. Throughout the Specification, reference is made to codes and standards which establish qualities, levels or types of workmanship which will be considered acceptable. It is the asbestos abatement contractor's responsibility to comply with these codes and standards during the execution of this work.

B. All materials and equipment required or consumed during the work of this Contract must meet the minimum acceptable criteria established by codes and standards referenced elsewhere in this Specification. Materials and equipment must be submitted for prior approval to the DDC project manager as part of the asbestos abatement contractor's "Shop Drawings".

C. It is the asbestos abatement contractor's responsibility, when so required by the Specification or upon written request from the Commissioner or his representative to furnish all required proof that workmanship, materials and/or equipment meet or exceed the codes and standards referenced. Such proof shall be in the form requested, typically a certified report or test conducted by a testing entity approved for that purpose by DDC.

D. The asbestos abatement contractor shall furnish proof that employees working under his supervision have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and OSHA regulations. This proof shall be in the form of a notarized affidavit to the effect that the above requirements have been

satisfied and a copy of the Job Hazard Analysis (JHA) with tool box meeting executed meeting sign in sheet.

E. The asbestos abatement contractor will have posted and in view at the job site the OSHA regulations 29 CFR 1910.1001, and 1926.1101 Asbestos Standard, and 29 CFR 1926.59 Hazard Communication Standard Environmental Protection Agency 40 CFR, Part 61, subpart B: National Emission Standard for asbestos, asbestos stripping, work practices and disposal of asbestos waste. One copy of NYC Title 15, Chapter 1 of RCNY and NYS DOL ICR 56 at the job site at all times.

F. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the asbestos abatement contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements, and are suitable for their intended use.

G. Rejection of Non-Complying Items: The Commissioner reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Commissioner further reserves the right, and without prejudice to other recourse that maybe taken, to accept non-complying items subject to an adjustment in the Contract amount as approved by the City.

H. Applicable Regulations, Codes and Standards: Applicable standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. American National Standards Institute (ANSI)
(Successor to USASI and ASA)
25 West 43rd Street (between 5th and 6th Avenue) 4th Floor
New York, NY 10036
212-642-4900

2. American Society for Testing and Materials (ASTM)
100 Bar Harbor Drive
West Conshohocken, PA 19428-2959
610-832-9500

3. National Institute for Occupational Safety and Health (NIOSH)
Robert A. Taft Laboratory
4676 Columbia Pkwy
Mailstop R12 Cincinnati, Ohio 45226
513-841-4428

4. National Electrical Code (NEC)
See NFPA

5. National Fire Protection Association (NFPA)
   1 Batterymarch Park
   Quincy, Massachusetts 02169-7471
   617-770-3000

6. New York City Fire Department (FDNY)
   9 Metrotech Center
   Brooklyn, NY 11201-5431
   718-999-2117

7. New York City Department of Buildings (NYC DOB)
   Enforcement Division
   280 Broadway, New York, New York 10007
   212- 566-2850

8. New York City Department of Environmental Protection (NYCDEP)
   Bureau of Environmental Compliance
   Asbestos Control Program
   59-17 Junction Boulevard, 8th Floor
   Corona, New York 11368
   718-595-3682

9. New York City Department of Health and Mental Hygiene (NYC DOHMH)
   Environmental Investigation
   125 Worth Street
   New York, New York 10013
   212-442-3372

10. New York State Department of Labor (NYSDOL)
    Division of Safety and Health, Engineering Services Unit
    State Office Building Campus
    Albany, New York 12240-0010

11. New York City Department of Sanitation
    125 Worth Street, Room 714
    New York, New York 10013
    212-566-1066

12. Occupational Safety and Health Administration (OSHA)
    Region II - Regional Office
    201Varick Street, Room 908
    New York, New York 10014
    212-337-2378

13. United States Environmental Protection Agency (EPA or USEPA)
Region II
Asbestos NESHAPS Contact
Air and Waste Management Division
(Air Compliance Branch) – USEPA
290 Broadway, 21st Floor
New York, New York 10007-1866
212-637-3660

I. Post all applicable regulations in a conspicuous place at the job site. Assure that the regulations are not altered, defaced or covered by other materials. One copy of each regulation must also be kept at the Asbestos abatement contractor's office.

1.11 CITY/ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

A. The normal occupants of the Work Areas will be relocated by the City prior to the performance of the abatement work and returned there to at the conclusion of the abatement work, at no cost to the asbestos abatement contractor. However, the asbestos abatement contractor shall protect all furniture and equipment in the Work Areas in a manner as hereinafter specified. In addition, the asbestos abatement contractor shall perform the work of this Contract in a manner that will be least disruptive to the normal use of the non-Work Areas in the building.

B. Asbestos abatement contractor shall be responsible for cleaning all portable items not specifically addressed by the Facility, in the Work Areas, or dispose of same as asbestos contaminated waste.

C. Facility to provide asbestos abatement contractor with a list of items that cannot be removed and need special attention.

D. Facility to stop all deliveries that may be scheduled to the Work Area while work is in progress.

E. Facilities to have authorized personnel on site at all times or supply the asbestos abatement contractor with means of contacting such personnel without unreasonable delay. Such personnel shall have access to all areas, have knowledge of electrical, and air handling equipment. Such personnel shall assist the asbestos abatement contractor in case of any power failure or breakdown to shut down air supply systems, to reset and control all protective systems such as alarms, sprinklers, locks, etc. The Facility shall ensure no active air handling systems are operating within the Work Area.

F. City will not occupy the portions of the building, in which work is being performed during the entire asbestos removal operation, including completion of clean up.

G. Asbestos abatement contractor shall provide a plan for 24 hour job security both for prevention of theft and for barring entry of curious but unprotected personnel into Work Areas, as required by the Department.

H. Asbestos abatement contractor shall provide surveillance by a fire watch and set forth procedures to be taken for the safety of building occupants in the event of an emergency, in accordance with the WPSP and DEP regulations.

I. Should the failure of any utility occur, the City will not be responsible to the asbestos abatement contractor for loss of time or any other expense incurred.

J. Facility will be responsible to notify the asbestos abatement contractor of any planned electrical power shutdowns in order to ensure that there are no power interruptions in the negative air pressure systems.

K. Asbestos abatement contractor shall remove all flammable materials from the work area and all sources of ignition (including but not limited to pilot lights) shall be extinguished.

L. Asbestos abatement contractor shall require a competent person (as defined in OSHA 1926.1101) to perform the following functions and to be on-site continuously for the duration of the project:

1. Monitor the set up of the Work Area enclosure and ensure its integrity.

2. Control entry and exit into the work enclosure.

3. Ensure that employees are adequately trained in the use of engineering controls, proper work practices, proper personal protective equipment and in decontamination procedures.

4. Ensure that employees use proper engineering controls, proper work practices, proper personal protective equipment and proper decontamination procedures.

5. The competent person (as defined in OSHA1926.1101) shall check for rips and tears in work suits, and ensure that they are mended immediately or replaced.

1.12 USE OF BUILDING FACILITIES

A. City shall make available to the asbestos abatement contractor, from existing outlets and supplies, all reasonably required amounts of water and electric power at no charge.

B. Electric power to all Work Areas shall be shut down and locked out except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided by asbestos abatement contractor in accordance with applicable codes. All power to Work Areas shall be brought in from outside the area through ground-fault interrupter circuits installed at the source. Stationary electrical equipment within the Work Area, which must remain in service, shall be adequately protected, enclosed and ventilated. The Facility will identify all electric lines that must remain in service. Asbestos abatement contractor shall protect all lines.

C. Asbestos abatement contractor shall provide, at his own expense, all electrical, water, and waste connections, tie-ins, extensions, and construction materials, supplies, etc. All water tie-ins shall be hard piped with polyethylene or copper piping. At the end of each shift, asbestos abatement contractor shall disconnect all hoses within the work zone and place in equipment room of the worker decontamination unit. Asbestos abatement contractor shall ensure positive shutoff of all water to Work Area during non-working hours.

D. Utilities:

1. General:
   All temporary facilities required to be installed, shall be subject to the approval of the Commissioner. Prior to starting the work at any site; specify clearly the temporary locations of facilities preferably with sketches and submit the same to the Construction Project Manager for approval.

2. Water:
   The Department of Design and Construction will furnish all water needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary plumbing or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work. Shower water for the decontamination unit shall be provided hot. Heating of water, if necessary, shall be provided by the asbestos abatement contractor.

3. Electricity:
   The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary electrical work or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work.

In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the asbestos abatement contractor. However, it is the asbestos abatement contractor's (or the General contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

A dedicated power supply for the negative pressure ventilating units shall be utilized. The negative air equipment shall be on a ground fault circuit interrupter (GFCI) protected circuit separate from the remainder of the work area temporary power circuits.

E. Asbestos abatement contractor shall shut down and lock out all electric power to all work areas except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided in accordance with all applicable codes. Existing light sources (e.g., house lights) shall not be utilized. All power to work areas shall be brought in from outside the area through ground-fault circuit interrupter at the source.

1. If electrical circuits, machinery, and other electrical systems in or passing though the work area must stay in operation due to health and safety requirements, the following precautions must be taken:

   a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

   b. Any energized circuits remaining in the work area shall be posted with a minimum two (2) inch high lettering warning sign which reads: DANGER LIVE ELECTRICAL - KEEP CLEAR. A sign shall be placed on all live covered barriers at a maximum of ten (10) foot intervals. These signs shall be posted in sufficient numbers to warn all persons authorized to enter the work area of the existence of the energized circuits.

2. Any source of emergency lighting which is temporarily blocked as a result of work place preparation shall be replaced for the duration of the project by battery operated or temporary exit signs, exit lights, or photo luminescent path markings.

F. Asbestos abatement contractor shall provide a separate temporary electric panel board to power asbestos abatement contractor’s equipment. The Facility will designate an existing electrical source in proximity to the Work Area. Asbestos abatement contractor's licensed electrician shall provide temporary tie-in via cable, outlet boxes, junction boxes, receptacles and lights, all with ground fault interruption. At no time shall extension cords greater than 50-feet in length be allowed. All temporary electrical installation shall be in accordance with OSHA regulations. The electric shut down for power panel tie-in will be on off-hours and must be coordinated with the Facility. Asbestos abatement contractor shall provide to the City a specification and drawing outlining his power requirements at the pre-construction meeting.

G. Additional electrical equipment (i.e., transformers, etc.), which is necessary due to the lack of existing power on the floor, shall be at the asbestos abatement contractor's expense.

H. Asbestos abatement contractor shall provide fire protection in accordance with all State and Local fire codes.

I. Sprinklers, standpipes, and other fire suppression systems shall remain in service and shall not be plasticized.

J. When temporary service lines are no longer required, they shall be removed by the asbestos abatement contractor. Any parts of the permanent service lines, grounds and buildings, disturbed or damaged by the installation and/or removal of the temporary service lines, shall be restored to their original condition by asbestos abatement contractor. Senior Stationary Engineer will inspect and test all switches, controls, gauges, etc. and shall submit a list to the Construction Project Manager of any equipment damaged by the asbestos abatement contractor.

K. Asbestos abatement contractor shall supply hot shower water necessary for use in the decontamination unit.

1.13 USE OF THE PREMISES

A. Asbestos abatement contractor shall confine his apparatus, the storage of materials, and supplies, and the operation of his workmen to limits established by law, ordinances, and the directions of the Construction Project Manager and the Facility. All flammable or combustible materials shall be properly stored to obviate fire and in areas approved by the Facility.

B. Asbestos abatement contractor shall assure that no exits from the building are obstructed, that appropriate safety barriers are established to prevent access, and that Work Areas are kept neat, clean, and safe.

C. Asbestos abatement contractor shall maintain exits from the work area or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

D. If the openings of temporary structural partitions related to abatement work areas block egress, the partition shall consist of two sheets of fire retardant 6-mil plastic, prominently marked as an exit with photo luminescent paint or signage. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress.

E. All surrounding work, fixtures, soil lines, drains, water lines, gas pipes, electrical conduit, wires, utilities, duct work railings, shrubbery, landscaping, etc. which are to remain in place shall be carefully protected and, if disturbed or damaged, shall be repaired or replaced as directed by the City, at no additional cost.

F. All routes through the building to be used by the asbestos abatement contractor shall first be approved by the Construction Project Manager and the Facility.

G. Attention is specifically drawn to the fact that other asbestos abatement contractors, performing the work of other Contracts, may be (or are) brought upon any of the work sites of this Contract. Therefore, the asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other asbestos abatement contractors who may be on (or are on) any site of the work of this Contract. Regulated area exempted.

H. Temporary toilet facilities must be provided by the asbestos abatement contractor on the site. Coordinate location of facilities with Construction Project Manager. No toilet facilities will be allowed in the Work Area.

1.14 PROTECTION AND DAMAGE

A. The asbestos abatement contractor is responsible to cover all furniture and equipment that cannot be removed from Work Areas. Moveable furniture and equipment will be removed from Work Areas by asbestos abatement contractor prior to start of work and returned upon successful completion of the final air testing. At the conclusion of the work (after clearance level of air testing reaches the acceptable limit), the asbestos abatement contractor will remove all plastic covering from the walls, floors, furniture, equipment and reinstall furniture and equipment in the cleaned Work Area. The asbestos abatement contractor shall remove all shades, curtains and drapes from the Work Area, and reinstall the same following the final clean up.

B. Prior to plasticizing, the proposed work areas shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning methods. Methods that raise dust, such as sweeping or vacuuming with equipment not equipped with HEPA filters, are prohibited.

C. Use rubber tired vehicles that use non-volatile fuels for conveying material inside building and provide temporary covering, as necessary, to protect floors.

D. No materials or debris shall be thrown from windows or doors of the building. Building waste management system shall NOT be used to remove any asbestos waste from the building.

E. Debris shall be removed from the work site daily. Premises shall be left neat and clean after each work shift, so that work may proceed the next regular workday without interruption. Limited bag storage may take place within the Work Area when approved by the Construction Project Manager.

F. Protect floors and walls along removal routes from damage, wear and staining with contamination control flooring. All finished surfaces to be protected with Masonite or other rigid sheathing material.

G. A preliminary inspection for pre-existing damage shall be conducted by asbestos abatement contractor and representative of the City before commencement of the project.

1.15 RESPIRATORY PROTECTION REQUIREMENTS

A. Respiratory protection shall be worn by all individuals who may be exposed to asbestos fibers from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with Regulations and these Specifications.

B. Asbestos abatement contractor shall develop and implement a written respiratory protection program with required site-specific procedures and elements. The program shall be administered by a properly trained individual. The written respiratory protection program shall include the requirements set forth in OSHA Standard 29 CFR 1910.134, at a minimum.

C. The Asbestos abatement contractor shall provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the Work Area(s), as specified in OSHA Standards 26 CFR 1910.134 and 29 CFR 1926.1101, NIOSH Standard 42 CFR 84, or as more stringently specified otherwise, herein.

D. Where respirators with disposable filter parts are employed, the asbestos abatement contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.

E. All respiratory protection shall be NIOSH approved. All respiratory protection shall be provided by asbestos abatement contractor, and used by workers in conjunction with the written respiratory protection program.

F. Asbestos abatement contractor shall provide respirators selected by an Industrial Hygienist that meet the following requirements:

Table 1. -- Assigned Protection Factors[5]

Type of Respirator[1,2]	Half mask	Full facepiece	Helmet/hood
1. Air-Purifying Respirator	[3]10	50	……
2. Powered Air-Purifying Respirator (PAPR)	50	1,000	[4]25/1,000
3. Supplied-Air Respirator (SAR) or Airline Respirator			
• Demand mode	10	50	……
• Continuous flow mode	50	1,000	[4]25/1,000
• Pressure-demand or other positive-pressure mode	50	1,000	……
4. Self-Contained Breathing Apparatus (SCBA)			
• Demand mode	10	50	50
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	……..	10,000	10,000

[1]Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

[2]The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

[3]This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

[4]The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

[5]These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

G. Selection of high efficiency filters:

1. All high efficiency filters shall have a nominal efficiency rating of 100 (99.97-percent effective) when tested against 0.3-micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

2. Choose N-, R-, or P-series filters based upon the presence or absence of oil particles.

a. N-series filters shall only be used for non-oil solid and water based aerosols or fumes.

b. R- and P-series filters shall be used when oil aerosols or fumes (i.e., lubricants, cutting fluids, glycerin, etc.) are present. The R-series filters are oil resistant and the P-series filters are oil proof.

c. Follow filter manufacture recommendations.

3. If a vapor hazard exists, use an organic vapor cartridge in combination with the high efficiency filter.

H. Historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for an abatement task. Historical data provided by the asbestos abatement contractor shall be based on personal air monitoring performed during work operations closely resembling the processes, type of material, control methods, work practices, and environmental conditions present at the site. Documentation of aforementioned results may be requested by the City and/or Third-Party Air Monitor for review. This will not relieve the asbestos abatement contractor from providing personal air monitoring to determine the time-weighted average (TWA) for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101.

I. At no time during actual removal operations shall half-mask air purifying respirators be allowed unless a full 8-hour TWA and excursion limit have been conducted, and reviewed by the Construction Project Manager. If the TWA and excursion limit have not been conducted, a Supplied-Air Respirator (SAR) or Airline Respirator or Self-Contained Breathing Apparatus (SCBA) must be used. Use of single use dust respirators is prohibited for the above respiratory protection.

J. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.

K. Asbestos abatement contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every 12 months thereafter with the type of respirator he/she will be using.

L. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

M. No facial hairs (beards) shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.

N. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the asbestos abatement contractor at the asbestos abatement contractor's expense.

O. Respiratory protection maintenance and decontamination procedures shall meet the following requirements:

1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134 (b); and

2. High efficiency filters for negative pressure respirators shall be changed after each shower; and

3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures as stated in Section 3.03 and/or 3.04.

4. Airline respirators with high efficiency filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator face pieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers recommendations; and

5. Respirators shall be stored in a dry place and in such a manner that the face-piece and exhalation valves are not distorted; and

6. Organic solvents shall not be used for washing of respirators.

P. Authorized visitors shall be provided with suitable respirators and instruction on the proper use of respirators whenever entering the Work Area. Qualitative fit test shall be done to ensure proper fit of respirator.

1.16 PROTECTIVE CLOTHING

A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. Provide to all workers, foremen, superintendents, authorized visitors and inspectors, protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.

B. In addition to personal protective equipment for workers, the asbestos abatement contractor shall make available at each worksite at least four (4) additional uniforms and required respiratory equipment each day for personnel who are authorized to inspect the work site. He/she shall also provide, for the duration of the work at any site involving a decontamination unit for worksite access, a lockable storage locker for use by the Construction Project Manager. In addition to respiratory masks for workers, the asbestos abatement contractor must have on hand at the beginning of each work day, at least four (4) masks each with three sets of fresh filters, for use by personnel who are authorized to inspect the worksite and

are medically qualified to don a respirator. The asbestos abatement contractor shall check for proper fit of the respirators of all City personnel authorized to enter the Work Area.

C. Asbestos handlers involved in tent procedures shall wear two (2) disposable suits, including gloves, hood and footwear, and appropriate respiratory equipment. All street clothes shall be removed and stored in a clean room within the work site. The double layer personal protective equipment shall be used for installation of the tent and throughout the procedure, if a decontamination unit (with shower and clean room) is contiguous to the Work Area, only one (1) layer of disposable personal protective equipment shall be required; in this case, prior to exiting the tent the worker shall HEPA vacuum and wet clean the disposable suit.

D. The outer disposable suit (if 2 suits are worn) shall be removed and remain in the tent upon exiting. Following the tent disposal and work site clean up the workers shall immediately proceed to a shower at the work site. The inner disposal unit and respirator shall be removed in the shower after appropriate wetting. The disposal clothing shall be disposed of as asbestos-containing waste material. The workers shall then fully and vigorously shower with supplied liquid bath soap, shampoo, and clean dry towels.

E. Coveralls: provide disposable full-body coveralls and disposable head covers. Require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes for all workers in the Work Area.

F. Boots: provide work boots with non-skid soles, and where required by OSHA, foot protection, for all workers. Provide boots at no cost to workers. Paint uppers of all boots yellow with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason after being contaminated with ACM and/or dust.

G. Hard Hats: provide hard hats as required by OSHA for all workers, and provide a minimum of four spares for Inspectors, visitors, etc. Label all hats with same warning label as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may cause potential head injury. Provide hard hats of the type with polyethylene strap suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean and decontaminate and bag hard hats prior to removing them from the Work Area at the end of the work.

H. Goggles: provide eye protection (goggles) as required by OSHA for all workers involved in any activity that may potentially cause eye injury. Require them to be worn at all times during these activities. Thoroughly clean and decontaminate goggles before removing them from the Work Area.

I. Gloves: provide work gloves to all workers, of the type dictated by the Work and OSHA Standards. Do not remove gloves from the Work Area. Dispose of as asbestos contaminated waste at the end of the work. Gloves shall be worn at all times, except during Work Area Preparation activities that do not disturb ACM.

J. Reusable footwear, hard hats and eye protection devices shall be left in the contaminated Equipment Room until the end of the Asbestos Abatement Work.

K. Disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facility.

L. Adequate supplies of disposable coveralls, head covers and foot covers shall be maintained by the asbestos abatement contractor for authorized representatives who may inspect the Work Area.

1.17 AIR MONITORING - ASBESTOS ABATEMENT CONTRACTOR

A. Asbestos abatement contractor shall employ a qualified industrial hygiene firm to conduct OSHA personal exposure monitoring air samples in accordance with OSHA Regulations, 1926.1101 (Asbestos Standards for Construction) to establish representative full shift monitoring data, per task, to determine respiratory protection. The asbestos abatement contractor may submit representative Personal exposure monitoring data for a project of similar size and complexity in lieu of performing monitoring in accordance with OSHA 29CFR 1926.1101.

B. The asbestos abatement contractor shall ensure that a qualified industrial hygiene laboratory for OSHA personal exposure monitoring is utilized. Such laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

C. Sampling and analysis methods shall be per NIOSH 7400A.

D. Test Reports:

1. Promptly process and distribute one copy of the test results, to the Commissioner via email.

2. Prompt reports are necessary so that if required, modifications to work methods and/or practices may be implemented as soon as possible.

3. Asbestos abatement contractor shall post the personal exposure monitoring results at the jobsite within 24 hours of receipt of the results.

E. Competent person shall conduct inspections and provide written reports daily. Inspections will include checking the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project which may affect the health and safety of the people and environment.

F. All costs for required the asbestos abatement contractor's air monitoring shall be borne by the asbestos abatement contractor.

G. The City reserves the right to conduct air and surface dust sampling in conjunction with and separate from the Third-Party Air Monitor for the purposes of Quality Assurance.

1.18 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM). This laboratory shall meet the standards stated in Paragraph 1.17. B.

C. Observations will include, but not be limited to, checking the standard operating procedures, engineering control systems, respiratory protection, decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project that may affect the health and safety of the environment, Asbestos abatement contractor, and/or facility occupants.

D. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

E. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

F. At a minimum, air sampling shall be conducted in accordance with the following schedule:

Abatement Activity	Pre-Abatement	During Abatement	Post- Abatement
Equal to or greater than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	TEM
Less than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	PCM

Note: TEM is acceptable wherever PCM is required.

G. The number of air samples required per stage of abatement and size of abatement project is listed in the table below:

		Pre-Abatement	During Abatement	Post Abatement
	Large Asbestos Projects			
1.	Full Containment	10	5	10
2.	Glovebag inside Tent	5[a]	5[a]	5[a]
3.	Exterior Foam and Vertical Surfaces	-	5[c]	5[d]
4.	Interior Foam	10	5[c]	10[d]
	Small Asbestos Projects			
1.	Full Containment	6	3	6
2.	Glovebag inside Tent	3[b]	3[b]	3[b]
3.	Tent	3[b]	3[b]	3[b]
4.	Exterior Foam and Vertical Surfaces	-	3[c]	3[d]
5.	Interior Foam	6	3[c]	6[d]
	Minor Projects			
1.	Glovebag inside Tent	-	-	1[d]
2.	Tent	-	-	1[d]
3.	Exterior Foam and Vertical Surfaces	-	-	1[d]
4.	Interior Foam	-	-	1[d]

[a]if more than three (3) tents then two (2) samples required per enclosure.

[b]if more than three (3) tents then one (1) sample required per enclosure.

[c]samples shall be taken within the work area(s).

[d]area sampling is required only if:

- visible emissions are detected during the project
- during-abatement area sampling results exceeded 0.01 f/cc or the pre-abatement area sampling result(s) for interior projects where applicable.
- work area to be reoccupied is an interior space at a school, healthcare, or daycare facility.

H. Prior to commencement of abatement activities, the Third Party Air Monitoring Firm will collect a minimum number of area samples inside each homogeneous work area.

1. Samples will be taken during normal occupancy activities and circumstances at the work site.

2. Samplers shall be located within the proposed work area and at all proposed isolation barrier locations.

3. Samples shall be analyzed using PCM.

4. The number of samples to be collected will be determined by the size of the project and the abatement methods to be utilized.

I. Frequency and duration of the air sampling during abatement shall be representative of the actual conditions during the abatement. The size of the asbestos project will be a factor in the number of samples required to monitor the abatement activities. The following minimum schedule of samples shall be required daily.

1. For large asbestos projects employing full containment, area air sampling shall be performed at the following locations:

a. Two area samples outside the work area in uncontaminated areas of the building, remote from the decontamination facilities.

(1) Primary location selection shall be within 10 feet of isolation barriers.

(2) Where negative ventilation exhaust runs through uncontaminated building areas, one of the area samples will be required in these areas to monitor any potential fiber release.

(3) Where exhaust tubes have been grouped together in banks of up to five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area, one area air sample shall be taken.

b. One area sample within the uncontaminated entrance to each decontamination enclosure system.

c. Where adjacent non-work areas do not exist, an exterior area sample shall be taken.

d. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct.

e. One area sample outside, but within 25 feet of, the building or structure, if the entire building or structure is the work area.

2. For large asbestos projects involving interior foam method, area air sampling shall be performed at the following sampling locations:

    a. One area sample taken outside the work area within 10 feet of isolation barriers.

    b. One area sample taken within the uncontaminated entrance to each worker decontamination and waste decontamination enclosure system.

    c. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct, if applicable.

    d. Three area samples inside the work area.

    e. One area sample where the negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.

3. For large asbestos projects employing the glovebag procedure within a tent, a minimum of five continuous air samples shall be taken concurrently with the abatement for each work area, unless there are more than three enclosures, in which case two area samples per enclosure are required.

    a. Four area samples taken outside the work area within ten feet of tent enclosure(s).

    b. One area sample taken within the uncontaminated entrance to each worker and waste decontamination enclosure system.

    c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.

    d. One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.

4. For large asbestos projects involving exterior foam method or removal of ACM from vertical surfaces, a minimum of five continuous area samples shall be taken concurrently with the abatement for each work area using the following minimum requirements:

    a. Three area samples inside the work area and remote from the decontamination systems.

b. One area sample within the uncontaminated entrance to each worker and waste decontamination enclosure system.

c. One area sample outside the work area within 25 feet of the building or structure, if the entire building or structure is the work area.

d. One area sample inside the building or structure at the egress point to the work area, if applicable.

5. For small asbestos projects employing full containment, a minimum of three continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:

a. Two area samples taken outside the work area within ten feet of the isolation barriers.

b. One area sample within the uncontaminated entrance to each worker or waste decontamination enclosure system.

c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.

d. One area sample where negative ventilation exhaust ducting runs through an uncontaminated building area, if applicable.

6. Tent Procedures:
For projects involving more than 25 linear feet or 10 square feet, a minimum of three continuous samples shall be taken concurrently throughout abatement.

J. Post-abatement clearance air monitoring for projects not solely employing glove-bag procedures shall include a minimum number of area samples inside each homogeneous work area and outside each homogeneous work area (five samples inside/five samples outside for Large Projects and three samples inside/three samples outside for Small Projects). In addition to the five sample inside/five sample outside minimum for Large Projects, one additional representative area sample shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.

K. Post-abatement clearance air monitoring for Small Projects solely employing glove-bag procedures is not required unless one or more of the following events occurs. In such cases, post-abatement clearance air monitoring procedures shall be followed. The events requiring post-abatement clearance air monitoring are:

1. The integrity of the glove-bag was compromised,

2. Visible emissions are detected outside the glove-bag, and/or

3. Ambient levels exceed 0.01 f/cc during abatement.

L. Monitoring requirements for other than post-abatement clearance air monitoring are as follows:

1. The sampling zone for indoor air samples shall be representative of the building occupants' breathing zone.

2. If possible, outdoor ambient and baseline samplers should be placed about 6 feet above the ground surface in reasonable proximity to the building and away from obstructions and drafts that may unduly affect airflow.

3. For outdoor samples, if access to electricity and concerns about security dictate a rooftop site, locations near vents and other structures on the roof that would unduly affect airflow shall be avoided.

4. Air sampling equipment shall not be placed in corners of rooms or near obstructions such as furniture.

5. Samples shall have a chain of custody record.

M. Post-abatement clearance air monitoring requirements are as follows:

1. Sampling shall not begin until at least one hour after wet cleaning has been completed and no visible pools of water or condensation remain.

2. Samplers shall be placed at random around the work area. If the work area contains the number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples, a representative sample of rooms shall be selected.

3. The representative samplers placed outside the work area but within the building shall be located to avoid any air that might escape through the isolation barriers and shall be approximately 50 feet from the entrance to the work area, and 25 feet from the isolation barriers.

N. The following aggressive sampling procedures shall be used within the work area during all clearance air monitoring:

1. Before starting the sampling pumps, use forced air equipment (such as a one horsepower leaf blower) to direct exhaust air against all walls, ceilings, floors, ledges and other surfaces in the work area. This pre-sampling procedure shall take at least five minutes per 1,000 square feet of floor area; then

2. Place a 20-inch diameter fan in the center of the room. Use one fan per 10,000 cubic feet of room space. Place the fan on slow speed and point it toward the ceiling.

3. Start the sampling pumps and sample for the required time or volume.

4. Turn off the pump and then the fan(s) when sampling is completed.

5. Collect a minimum number of area samples inside and outside each homogeneous work area (five inside/five outside samples for Large Projects and three inside/three outside samples for Small Projects). In addition to the minimum for Large Projects, one representative area samples shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.

O. For post-abatement monitoring, area samples shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow Rate
PCM	1,800 liters	5 to 15 liters/minute
TEM	1,250 liters	1 to 10 liters/minute

1. Each homogeneous work area that does not meet the clearance criteria shall be thoroughly re-cleaned using wet methods, with the negative pressure ventilation system in operation. New samples shall be collected in the work area as described above. The process shall be repeated until the work site meets the clearance criteria.

2. For an asbestos project with more than one homogeneous work area, the release criterion shall be applied independently to each work area.

3. Should airborne fiber concentrations exceed the clearance criteria, the asbestos abatement contractor shall re-clean the work area utilizing wet wiping and HEPA-vacuuming techniques. Following completion of re-cleaning activities, the Third-Party Air Monitor will perform an observation of the Work Area. If the Third-Party Air Monitor determines that the work was performed in accordance with the specifications, the appropriate settling period will be observed and additional air sampling will be performed.

4. All costs resulting from additional air tests and observations shall be borne by the asbestos abatement contractor. These costs may include, but are not limited to, labor, analysis fees, materials, and expenses.

5. After the area has been found to be in compliance, the asbestos abatement contractor may remove Isolation Barriers and perform final cleaning as specified.

P. Clearance and/or Re-occupancy Criteria:

1. The clearance criteria shall be applied to each homogeneous work area independently.

2. For PCM analysis, the clearance air monitoring shall be considered satisfactory when each of the 5 inside/5 outside samples for Large Projects and/or 3 inside/3 outside samples for Small Projects is less than or equal to 0.01 f/cc or the background concentrations, whichever is greater.

3. For TEM analysis, the clearance air monitoring shall be considered satisfactory when the requirements stated in 40 CFR Part 763, Subpart E, Appendix A, Section IV are met.

4. As soon as the air monitoring tests are completed and analyzed, the Third-Party Air Monitor will send the results of such tests to the City and notify the Asbestos abatement contractor.

5. The asbestos abatement contractor shall initiate the appropriate closeout process in DEP ARTS within 24 hours of the Re-occupancy letter being issued by the Third-Party Air Monitoring Firm. This will allow the Third-Party Air Monitoring Firm to complete and submit the ACP-15 forms for each specific work area.

6. The asbestos abatement contractor shall provide the ACP-20 and ACP-21 forms to the general contractor within 48 hours of receipt by DEP.

1.19 TAMPERING WITH TEST EQUIPMENT

All parties to this Contract are hereby notified that any tampering with testing equipment will be considered an attempt at falsifying reports and records to federal and state agencies and each offense will be prosecuted under applicable state and federal criminal codes to the fullest extent possible.

1.20 GUARANTEE

A. Work performed in compliance with this Contract shall be guaranteed for a period of one year from the date the completed work is accepted by the City.

B. The asbestos abatement contractor shall not be held liable for the guarantee where the repair required under the guarantee is a result of obvious abuse or vandalism, as determined by the Commissioner.

C. The City will notify the asbestos abatement contractor in writing regarding defects in work under the guarantee.

PART 2 – PRODUCTS

2.01 MATERIAL HANDLING

A. Deliver all materials to the job site in their manufacturer's original container, with the manufacturer's label intact and legible.

1. Maintain packaged materials with seals unbroken and labels intact until time of use.

2. Store all materials on pallets, away from any damp and/or wet surface. Cover materials in order to prevent damage and/or contamination.

3. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the City.

B. The Construction Project Manager may reject as non-complying such material and products that do not bear identification satisfactory to the Construction Project Manager as to manufacturer, grade, quality and other pertinent information.

2.02 MATERIALS

A. Wetting agents: (Surfactant) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-hazardous. Surfactants shall be installed according to the manufacturer's written instructions.

B. Encapsulants: Liquid material which can be applied to asbestos-containing material which temporarily controls the possible release of asbestos fibers from the material or surface either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

C. During abatement activities, replacement materials shall be stored outside the work area in a manner to prevent contamination. Materials required for the asbestos project (i.e., plastic sheeting, replacement filters, duct tape, etc.) shall be stored to prevent damage or contamination.

D. Framing Materials and Doors: As required to construct temporary decontamination facilities and isolation barriers. Lumber shall be high grade, new, finished one side and fire retardant.

E. Fire Retardant Polyethylene Sheeting: minimum uniform thickness of 6-mil. Provide largest size possible to minimize seams. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

F. Fire Retardant Reinforced Polyethylene Sheeting: For covering floor of decontamination units, provide translucent, nylon reinforced or woven polyethylene laminated, fire retardant polyethylene sheeting. Provide largest size possible to minimize seams, minimum uniform thickness 6-mil. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

G. Drums: Asbestos-transporting drums, sealable and clearly marked with warning labels as required by OSHA and EPA.

H. Polyethylene Disposal Bags: Asbestos disposal bags, minimum of fire retardant 6-mil thick. Bags shall be clearly marked with warning labels as required by OSHA and EPA.

I. Signs: Asbestos warning signs for posting at perimeter of Work Area, as required by OSHA and EPA.

J. Waste Container Bag Liners and Flexible Trailer Trays: One piece leak-resistant flexible tray with absorbent pad.

K. Tape: Provide tape which is of high quality with an adhesive that is formulated to aggressively stick to sheet polyethylene.

L. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

M. Flexible Duct: Spiral reinforced flex duct for air filtration devices.

N. Protective Clothing: Workers shall be provided with sufficient sets of properly fitting, full-body, disposable coveralls, head covers, gloves, and 18-inch high boot-type foot covers. Protective clothing shall conform to OSHA Standard 29 CFR 1926.1101.

O. Surfactants, strippers, sealers, or any other chemicals used shall be non-carcinogenic and non-toxic.

P. Materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

2.03 TOOLS AND EQUIPMENT

A. Air Filtration Device (AFD): AFDs shall be equipped with High Efficiency Particulate Air (HEPA) filtration systems and shall be approved by and listed with Underwriter's Laboratory.

B. Scaffolding: All scaffolding shall be designed and constructed in accordance with OSHA (29 CFR 1926/1910), New York City Building Code, and any other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references the most stringent provisions are applicable. All scaffolding and components shall be capable of supporting without failure a minimum of four times the maximum intended load, plus an allowance for impact. All scaffolding and staging must be certified in writing by a Professional Engineer licensed to practice in the State of New York.

1. Equip rungs of all metal ladders, etc., with an abrasive, non-slip surface.

2. Provide non-skid surface on all scaffold surfaces subject to foot traffic. Scaffold ends and joints shall be sealed with tape to prevent penetration of asbestos fibers.

C. Transportation Equipment: Transportation Equipment, as required, shall be suitable for loading, temporary storage, transit and unloading of asbestos contaminated waste without exposure to persons or property. Any temporary storage containers positioned outside the building for temporary storage shall be metal, closed and locked.

D. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems.

E. Vacuum Attachments: Soft Brush Attachment, Asbestos Scraper Tool, Drill Dust Control Kit.

F. Electric Sprayer: An electric airless sprayer suitable for application of encapsulating material and shall be approved by and listed with Underwriters Laboratory.

G. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

H. Water Atomizer: Powered air-misting device equipped with a ground fault interrupter and equipped to operate continuously.

I. Brushes: All brushes shall have nylon bristles. Wire brushes are excluded from use due to their potential to shred asbestos fibers into small, fine fibers.

J. Power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation. Abrasive removal methods, including the use of beadblasters, are prohibited.

K. Other Tools and Equipment: Asbestos abatement contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, sponges, rounded-edge shovels, brooms, and carts.

L. Fans and Leaf Blower: Provide Leaf Blower (one leaf blower per floor) and one 20-inch diameter fans for each 10,000 cubic feet of Work Area volume to be used for aggressive sampling technique for clearance air testing.

M. Fire Extinguishers: At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.

N. First Aid Kits: Asbestos abatement contractor shall maintain adequately stocked first aid kits in the clean rooms of the decontamination units and within Work Areas. The first aid kit shall be approved by a licensed physician for the work to be performed under this Contract.

O. Water Service:

1. Temporary Water Service Connection: All connections to the Facilities water system shall include back flow protection. Valves shall be temperature and pressure rated for operation of the temperature and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping, and equipment. Leaking or dripping fittings/valves shall be repaired and or replaced as required.

2. Water Hoses: Employ new heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each Work Area and to each Decontamination Enclosure Unit. Provide fittings as required for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.

3. Water Heater: Provide UL rated 40-gallon electric water heaters to supply hot water for Personal Decontamination Enclosure System Shower. Activate from 30 Amp Circuit breakers located within the Decontamination Enclosure sub panel. Provide relief valve compatible with water heater

operations, pipe relief valve down to drip pan at floor level with type 'L' copper piping. Drip pans shall be 6-inch deep and securely fastened to water heater. Wiring of the water heater shall comply with NEMA, NECA, and UL standards.

P. Electrical Service:

1. General: Comply with applicable NEMA, NEC and UL standards and governing regulations for materials and layout of temporary electric service.

2. Temporary Power: Provide service to decontamination unit sub panel with minimum 60 AMP, two pole circuit breaker or fused disconnect connected to the building's main distribution panel. Sub panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

3. Voltage Differences: Provide identification warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

4. Ground Fault Protection: Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate the GFCIs outside the Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in Work Area, decontamination units, exterior, or as otherwise required by NECA, OSHA or other authority.

5. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead, and rise vertically where wiring will be least subject to damage from operations.

6. Temporary Wiring: In the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Provide liquid tight enclosures or boxes for all wiring devices. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors.

7. Electrical Power Cords: Use only grounded extension cords; use hard service cords where exposed to traffic and abrasion. Use single lengths of cords only.

8. Temporary Lighting: All lighting within the Work Area shall be liquid and moisture proof and designed for the use intended.

a. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

b. Provide lighting in the Decontamination Unit as required to supply a minimum 50-foot candle light level.

9. If electrical circuits, machinery, and other electrical systems in or passing though the work area must stay in operation due to health and safety requirements, the following precautions must be taken:

a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

2.04 CLEANING

A. Throughout the construction period, the asbestos abatement contractor shall maintain the building as described in this Section.

1. The asbestos abatement contractor shall prevent building areas other than the Work Area from becoming contaminated with asbestos-containing dust or debris. Should areas outside the Work Area become contaminated with asbestos-containing dust or debris as a consequence of the asbestos abatement contractor's work practices, the asbestos abatement contractor shall be responsible for cleaning these areas in accordance with the procedures appended in Title 15, Chapter 1 of RCNY and NYSDOL ICR56. All costs incurred in cleaning or otherwise decontaminating non-Work Areas and the contents thereof shall be borne by the asbestos abatement contractor at no additional cost to the City.

2. The asbestos abatement contractor shall provide to all personnel and laborers the required equipment and materials needed to maintain the specified standard of cleanliness.

B. General

1. Waste water from asbestos removal operations, including shower water, may be discharged into the public sewer system only after approved filtration is on operation to remove asbestos fibers.

2. Asbestos wastes shall be double bagged in six mil fire retardant polyethylene bags approved for ACM disposal and shall be properly labeled and handled before disposal.

3. All waste generated shall be bagged, wrapped or containerized immediately upon removal. The personal and waste decontamination enclosure systems and floor and scaffold surfaces shall be HEPA vacuumed and wet cleaned at the end of each work shift at a minimum.

4. The asbestos abatement contractor shall use corrugated cartons or drums for disposal of asbestos-containing waste having sharp edged components (e.g., nails, screws, metal lathe and tin sheeting) that may tear polyethylene bags and sheeting. The waste within the drums or cartons must be double bagged.

5. The asbestos abatement contractor shall transport all bags of waste to disposal site in thirty gallon capacity metal or fiber drums with tight lids, or in locked steel dumpster.

6. Dumping of debris, waste or bagged waste will not be permitted.

7. The waste decontamination enclosure system shall be wet cleaned twice using wet cleaning methods upon completion of waste removal. When the worker decontamination enclosure shower room alternates as a waste container wash room, the shower room shall be washed immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.

8. Excessive water accumulation or flooding in the work area shall require work to stop until the water is collected and disposed of properly.

9. ACM shall be collected utilizing rubber dust pans and rubber squeegees.

10. HEPA vacuums shall not be used on wet materials unless specifically designed for that purpose.

11. Metal shovels shall not be used within the work area.

12. Mastic solvent when used will be applied in moderation (e.g., by airless sprayer). Saturation of the concrete floor with mastic solvent must be avoided.

13. The asbestos abatement contractor shall retain all items in the storage area in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of all materials.

14. The asbestos abatement contractor shall not allow accumulation of scrap, debris, waste material, and other items not required for use in this work. When asbestos contaminated waste must be kept on the work site overnight or longer, it shall be double bagged and stored in accordance with New York City Department of Sanitation (DSNY) regulation Title 16 Chapter 8, and Federal, State and City laws.

15. At least twice a week (more if necessary), the asbestos abatement contractor shall completely remove all scrap, debris and waste material from the job site.

16. The asbestos abatement contractor shall provide adequate storage space for all items awaiting removal from the job site, observing all requirements for fire protection and concerns for the environment.

17. All respiratory protection equipment shall be selected from the latest NIOSH Certified Equipment list.

18. Daily and more often, if necessary, the asbestos abatement contractor shall inspect the Work Areas and adjoining spaces, and pick up all scrap, debris, and waste material. All such items shall be removed to the place designated for their storage.

19. Weekly, and more often, if necessary, the asbestos abatement contractor shall inspect all arrangements of materials stored on the site; re-stack and tidy them or otherwise service them to meet the requirements of these Specifications.

20. The asbestos abatement contractor shall maintain the site in a neat and orderly condition at all times.

PART 3 – EXECUTION

3.01 WORKER DECONTAMINATION FACILITY

A. Large Asbestos Projects:

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas

a. Structure:

(1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.

(2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.

(3) Interior shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of 12 inches.

(4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.

b. Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

c. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart. The curtained doorways shall consist of 3 overlapping sheets of fire retardant 6-mil polyethylene sheeting, with alternating entrances and weighted at the bottom.

d. Decontamination Enclosure System shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:

(1) Equipment Room: The equipment room shall have a curtain doorway to separate it from the Work Area, and share a common airlock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing them enough room to remove their protective clothing and footwear), and a fire retardant 6-mil disposal bag for collection of discarded clothing and equipment. The equipment room shall be utilized for the storage of equipment and tools after decontamination using a HEPA-vacuum and/or wet cleaning. A one-day supply of replacement filters, in

sealed containers, for HEPA-vacuums and negative air machines, extra tools, containers of surfactant, and other materials and equipment required for the project shall be stored here. A walk-off pan filled with water shall be placed in the Work Area just outside the equipment room for persons to clean foot coverings when leaving the Work Area. Contaminated footwear and reusable work clothing shall be stored in this room.

(2) Shower Room: The shower room shall have two airlocks (one that separates it from the equipment room and one that separates it from the clean room). The shower room shall contain at least one shower, with hot and cold water adjustable at the tap, per six workers. Careful attention shall be given to the shower to ensure against leaking of any kind and shall contain a rigid catch basin at least six inches deep. Asbestos abatement contractor shall supply towels, shampoo and liquid soap in the shower room at all times. Shower water shall be continuously drained, collected, and filtered through a system with at least a 5-micron particle size collection capacity. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filters by large particles. Pumps shall be installed, maintained and utilized in accordance with manufacturer's recommendations. Filtered water shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.

(3) Clean Room: The clean room shall share a common airlock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. Lockers, for storage of workers' street clothing, and shelves, for storing respirators, shall be provided in this area. Clean disposable clothing, replacement filters for respirators, and clean dry towels shall be provided in the clean room. The clean room shall not be used for the storage of tools, equipment or other materials.

B. Small Asbestos Projects:

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.

2. The worker decontamination enclosure system shall consist of, at a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.

3. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.

C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

3.02 WASTE DECONTAMINATION FACILITY

A. Large Asbestos Project (Small Project Option)

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.

a. Structure:

(1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.

(2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8” thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.

(3) Interior walls shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of 12 inches.

(4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into the Work Area.

b. Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

c. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart. The curtained doorways shall consist of 3 overlapping sheets of fire retardant 6-mil polyethylene sheeting, with alternating entrances and weighted at the bottom.

d. Decontamination Enclosure System shall be located outside the work area and attached to all locations through which ACM waste will be removed from the work area and shall consist of two totally enclosed chambers, separated from the Work Area and each other by airlocks, as follows:

(1) Washroom: An equipment washroom shall have two air locks (one separating the unit from the Work Area and one common air lock that separates it from the holding area). The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the Work Area, prior to moving to the washroom.

B. Holding Area: A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the Work Area.

C. Small Asbestos Project:

1. The worker decontamination enclosure system shall consist of, as a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.

2. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.

D. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

3.03 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING REMOTE DECONTAMINATION FACILITIES

A. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall fully identify the facility, agents, asbestos abatement contractor(s), the project, each Work Area, and worker respiratory protection employed. The asbestos handler supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.

B. Each worker shall remove street clothes in the clean room; wear two disposable suits, including gloves, hoods and non-skid footwear; and put on a clean respirator (with new filters) before entering the Work Area.

C. Each worker shall, before leaving the Work Area or tent, clean the outside of the respirators and outer layer of protective clothing by wet cleaning and/or HEPA-vacuuming. The outer disposable suit shall be removed in the airlock prior to proceeding to the Worker Decontamination Unit. The inner disposable suit and respirator shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to aggressive shower.

D. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately.

3.04 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING ATTACHED DECONTAMINATION FACILITIES

A. All workers and authorized visitors shall enter the Work Area through the worker decontamination facility.

B. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, asbestos abatement contractor(s), the

project, each Work Area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.

C. Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator with filters, and clean protective clothing before entering the Work Area through the shower room and equipment room.

D. Each worker or authorized visitor shall, each time he leaves the Work Area, remove gross contamination from clothing before leaving the Work Area; proceed to the equipment room and remove clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.

E. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the Work Area is not permitted outside the Work Area.

3.05 MAINTENANCE OF DECONTAMINATION ENCLOSURE FACILITIES AND BARRIERS

The following procedures shall be followed during abatement activities.

A. All polyethylene barriers inside the work place and partitions constructed to isolate the Work Area from occupied areas shall be inspected by the asbestos handler supervisor at least twice per shift.

B. Smoke tubes shall be used to test the integrity of the Work Area barriers and the decontamination enclosure systems daily before abatement activity begins and at the end of each shift.

C. Damage and defects in the decontamination enclosure system shall be repaired immediately upon discovery. The decontamination enclosure system shall be maintained in a clean and sanitary condition at all times.

D. At any time during the abatement activity, if visible emissions are observed, or elevated asbestos fiber counts outside the Work Area are measured, or if damage occurs to barriers, abatement shall stop. The source of the contamination shall be located, the integrity of the barriers shall be restored and extended to include the contaminated area, and visible residue shall be cleaned up using appropriate HEPA-vacuuming and wet cleaning.

E. Inspections and observations shall be documented in the daily project log by the asbestos handler supervisor.

F. The daily inspection to ensure that exits have been checked against exterior blockage or impediments to exiting shall be documented in the log book. If exits are found to be blocked, abatement activities shall stop until the blockage is cleared.

3.06 MODIFICATIONS TO HVAC SYSTEMS

A. Shut down, isolate or seal, all existing HVAC units, fans, exhaust fans, perimeter convection air units, supply and/or return air ducts, etc., situated in, traversing or servicing the work zone.

B. Seal all seams with duct tape. Wrap entire duct with a minimum of two layers of fire retardant 6-mil polyethylene sheeting. All shutdowns are to be coordinated with the Facility. Where systems must be maintained, i.e., traversing Work Areas to non-Work Areas, only supply ducts will be maintained, protect as described above. All returns must be blanked off in Work Area and adjacent areas, including floor above and below Work Area. When required Asbestos abatement contractor shall apply for a clarification from NYCDEP. The Asbestos abatement contractor shall implement the following engineering procedures:

1. Maintenance of a positive pressure within the HVAC system of 0.01 inch water gauge (or greater) with respect to the ambient pressure outside the Work Area. The conditions for this system shall be maintained and be operational 24 hours per day from the initiation of Work Area preparation until successful final air clearance. Positive pressurization of HVAC system shall be applied only under the direction and control of professional engineer, or other knowledgeable licensed professional;

2. The positive pressurization of the duct shall be tested, inspected and recorded both at the beginning and at the end of each shift;

3. The positive pressurization shall be monitored using instrumentation which will provide a written record of pressurization and that will trigger an audible alarm, if the static pressure falls below the set value;

4. The supply air fan and the supply air damper for the active positive-pressurized duct shall be placed in the manual “on” positions to prevent shutdown by fail-safe mechanisms;

5. The return air fan and the return air dampers shall be shut down and locked-out;

6. All the seams of the HVAC ducts that pass through the Work Area shall be sealed;

7. The HVAC ducts that pass through the Work Area shall be covered with two (2) layers of fire retardant 6-mil polyethylene sheeting, and all seams and edges of both layers shall be sealed airtight;

8. The supply air fans, return air fans, and all dampers servicing the Work Area itself shall be shut down and locked-out. All openings within the Work Area of supply and return air ducts shall be sealed with 3/8-inch fire rated plywood and two layers of fire retardant 6-mil polyethylene;

9. When abatement occurs during periods while the HVAC system is shut down an alternative method of pressurization of the duct passing through the Work Area should be employed (e.g., by low-pressure "blowers", etc., directly coupled into the duct). Item #4 above shall be deleted and shall be replaced by the requirement to set the dampers of the HVAC duct in the manual closed positions, in order to effect pressurization.

C. Asbestos abatement contractor to coordinate this item with the Facility and Construction Project Manager at the commencement of work. Where present HVAC systems (ducts) service an area and that air system cannot be shut down, asbestos abatement contractor shall isolate and seal the ducts, both supply and return, at the boundary of that zone.

1. To isolate, cap, or seal a duct, the asbestos abatement contractor shall remove insulation from duct (if necessary), then disconnect linkage to fold shut all fire dampers. Asbestos abatement contractor shall seal all edges and seams with caulk and duct-tape.

2. Asbestos abatement contractor shall then cut existing duct and fold metal in and secure with approved fasteners. Asbestos abatement contractor shall caulk and duct-tape all seams and edges.

3. All ducts shall then be completely wrapped and sealed with duct-tape and three (3) layers of reinforced polyethylene sheeting.

4. All ducts shall be restored to original working order at the end of the project.

D. Where present HVAC systems (ducts) service occupied areas (non-Work Areas), the Asbestos abatement contractor shall blank off the ducts.

1. To isolate or seal the return duct, the asbestos abatement contractor shall remove any insulation (if necessary) from the duct. Then disconnect linkage to fold shut all fire dampers and insert a fiberglass board within the duct. Asbestos abatement contractor shall seal all edges and seams with caulk, duct-tape and three (3) layers of reinforced polyethylene sheeting.

2. All isolation of return ducts and any other activity that requires removal of ceiling by the asbestos abatement contractor shall be conducted under controls. Work is to be coordinated with the Construction Project Manager and the Facility and is described as follows:

   a. Work shall occur as scheduled.

   b. Horizontal surfaces near the blanking operations shall be protected with fire retardant 6-mil polyethylene sheeting.

   c. Plastic drapes shall be used to enclose the immediate area.

   d. Asbestos abatement contractor to position and operate air filtration devices and HEPA-vacuums in the area to clean space after blanking operations.

   e. All personnel involved with this work shall receive personal protection (i.e., respirators and disposable suits).

E. Upon loss of negative pressure or electric power, all work activities in an area shall cease immediately and shall not resume until negative pressure and/or electric power has been fully restored. When a power failure or loss of negative pressure lasts, or is expected to last, longer than thirty (30) minutes, the following sequence of events shall occur.

   1. All make up air inlets shall be sealed airtight.

   2. All decontamination facilities shall be sealed airtight after evacuation of all personnel from the Work Area.

   3. All adjacent areas shall be monitored for potential fiber release upon discovery of and subsequently throughout, power failure.

3.07 LOCKOUT OF HVAC SYSTEMS, ELECTRIC POWER, AND ACTIVE BOILERS

Prior to the start of any prep work, the asbestos abatement contractor shall employ skilled tradesmen with limited asbestos licenses for the following work:

A. Disable all ventilating systems or other systems bringing air into or exhausting air out of the Work Area. Disable system by disconnecting wires removing circuit breakers, by lockable switch or other positive means to ensure against accidental re-starting of equipment.

B. Lock out power to the Work Area by switching off all breakers and removing them from panels or by switching and locking entire panel. Label panel with following notation: “DANGER CIRCUIT BEING WORKED ON”. Give all keys to Facility.

C. Lock out power to circuits running through Work Area whenever possible by switching off and removing breakers from panel. If circuits must remain live, the Facility shall notify asbestos abatement contractor in order that he may secure a variance from NYCDEP. The asbestos abatement contractor shall protect all conduit and wires to remain and label all active circuits at intervals not to exceed 3 feet with tags having the following notation: “DANGER LIVE ELECTROCUTION HAZARD”. The asbestos abatement contractor shall label all circuits in all locations including hidden locations that may be affected by the work in a similar manner.

D. All boilers and other equipment within the work area shall be shut down, locked out, tagged out and the burner/boiler/equipment accesses and openings shall be sealed until abatement activities are complete. If the boiler or other exhausted equipment will be subject to abatement, all breeching, stacks, columns, flues, shafts, and double-walled enclosures serving as exhausts or vents shall be segregated from the affected boiler or equipment and sealed airtight to eliminate potential chimney effects within the work area.

PART 4 – PREPARATION OF WORK AREA AND REMOVAL PROCEDURES

4.01 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

A. Asbestos abatement contractor Responsibility

Asbestos abatement contractor shall be responsible for the proper removal of ACM from the Work Area using standard industry techniques. The Third-Party Air Monitor representative shall observe the Work.

1. General Requirements:

   a. Removal of ACM shall be performed using wet methods. Dry removal of ACM is prohibited.

   b. Spray ACM with amended water with sufficient frequency and quantity to enhance penetration. Sufficient time shall be allowed for amended water to penetrate the material to the substrate prior to removal. All ACM shall be thoroughly wetted while work is being conducted.

   c. Accumulation of standing water on the floor of the Work Area is prohibited.

d. Apply removal encapsulants, when used, in accordance with the manufacturer's recommendations and guidelines.

e. Containerize ACM immediately upon detachment from the substrate. Alternately, ACM may be dropped in to a flexible catch basin and promptly bagged. Detached ACM is not permitted to lie on the floor for any period of time. Excess air within the bag shall be removed before sealing. ACM shall not be dropped from a height of greater than 10 feet. Above 10 feet, dust free inclined chutes may be used. Maximum inclination from horizontal shall be 60-degrees for all chutes.

f. Exits from the work area shall be maintained, or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

g. Signs clearly indicating the direction of exits shall be maintained and prominently displayed within the work area.

h. No smoking signs shall be maintained and prominently displayed within the work place.

i. At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.

j. If the containment area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors the cut off switch shall be able to turn off the equipment on all floors.

B. Removal of ACM Utilizing Full Containment Procedures shall be as follows:

1. Preparation Procedures:

a. Ensure that the Third-Party Air Monitor has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.

b. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC components shall be sealed with tape and two layers of fire retardant polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos contaminated waste.

c. Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.

d. Provide and install decontamination enclosure systems in accordance with Sections 3.01 and 3.02 of this Section.

e. Remove ACM that may be disturbed by the erection of partitions using tent procedures and wet removal methods. Removal shall be limited to a one-foot wide strip running the length/height of the partition.

f. Pre-clean and remove moveable objects from the Work Area. Pre-cleaning shall be accomplished using HEPA-vacuum and wet-cleaning techniques. Store moveable objects at a location determined by the City.

g. Protect carpeting that will remain in the Work Area.

(1) Pre-clean carpeting utilizing wet-cleaning techniques.

(2) Install a minimum of two layers of fire retardant 6-mil reinforced polyethylene sheeting over carpeting.

(3) Place a rigid flooring material, minimum thickness of 3/8-inch, over polyethylene sheeting.

h. Pre-clean all fixed objects to remain within the Work Area using HEPA-vacuum and wet-cleaning techniques.

i. Seal fixed objects with two individual layers, minimum, of 6-mil fire retardant polyethylene sheeting.

j. Pre-clean entire Work Area utilizing HEPA-vacuum and wet-cleaning techniques. Methods of cleaning that raise dust; such as dry sweeping or use of vacuum equipment not equipped with HEPA-filters, is prohibited.

k. Install isolation barriers (i.e., sealing of all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffusers, and other penetrations within the Work Area) using two layers of 6-mil fire retardant polyethylene sheeting and duct-tape.

l. Construct rigid framework to support Work Area barriers.

(1) Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist for all openings greater than 32 square feet. Framework is not required except where one dimension is one foot or less or the opening will be used as an emergency exit.

(2) Apply a solid construction material, minimum thickness of 3/8-inch to the Work Area side of the framing. In secure interior areas, not subject to access from the public or building occupants, an additional layer of 6-mil fire retardant polyethylene sheeting may be substituted for the rigid construction material.

(3) Caulk all wall, floor, ceiling, and fixture joints to form a leak tight seal.

m. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of 6-mil fire retardant plastic and fire rated plywood, as necessary, and provide a system to collect all water used by the asbestos abatement contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.

n. Remove ceiling mounted objects not previously sealed that will interfere with removal operations. Mist object and surrounding ACM with amended water prior to removal to minimize fiber dispersal. Clean all moveable objects using HEPA-vacuum and wet-cleaning techniques prior to removal from the Work Area.

o. Fiberglass insulation with intact coverings shall be protected in place during abatement activities. These materials shall be protected with two layers of 6-mil fire retardant polyethylene sheeting as isolation barriers and two additional layers of 6-mil fire retardant polyethylene sheeting serving as primary and secondary surface barriers.

p. Install and initiate operation of Air Filtration Devices (AFD)s to provide a negative pressure and a minimum of four air changes per hour within the Work Area relative to surrounding non-Work Areas.

Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuum to produce a negative air pressure inside the enclosure is prohibited.

q. Maintain emergency and fire exits from the Work Area or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.

r. Temporary lighting within the Work Area and decontamination system shall be provided as required to achieve minimum illumination levels.

s. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation.

t. Prior to being plasticized, the Work Areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.

u. Plasticize the area after pre-cleaning, using the following procedures.

(1) Cover floors with one layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 6 inches up wall, and seal layer to wall.

(2) Cover walls with one layer of 6-mil fire retardant polyethylene sheeting, overlapping wall layer a minimum of 6 inches, and seal layer to floor layer.

(3) Cover floors with a second layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.

(4) Cover walls with a second layer of fire retardant 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.

(5) In areas where demolition is required to access ACM, a layer of fire retardant 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.

(6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM waste as described in this Specification.

(7) Repeat preparation of areas accessed by demolition activities as described above.

v. Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.

w. Scaffolds shall be provided for workers engaged in work that cannot safely be performed from the ground or other solid Work Area surface.

x. Means of egress shall not be obstructed by hardwall barriers.

y. Pre-Removal Inspections.

(1) Prior to removal of any ACM, the asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.

(2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

(3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Within Full Containment:

a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.

b. Remove the material using hand tools such as scrapers or putty knives. Wire-mesh or wood lathe reinforcing, when present, shall be cut into manageable pieces and disposed of as ACM.

c. Remove any residual material from the substrate using wet cleaning methods and nylon-bristled hand brushes.

d. Place the removal material immediately into a properly labeled fire retardant 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.

e. Following the completion of removal of insulation, all visible residue shall be removed from the substrate.

3. Following Removal of ACM utilizing Full Containment Procedures:

a. First Cleaning:

(1) Remove any visible accumulation of asbestos material and debris. HEPA-vacuuming and wet cleaning shall be performed on all surfaces inside the Work Area. All sealed drums, plastic bags, and equipment used in the Work Area shall be removed from the Work Area.

(2) Upon request of the asbestos abatement contractor, the Third-Party Air Monitor will perform a visual inspection. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

(3) Remove first layer of plastic sheathing inside the Work Area. The isolation barriers and decontamination facility shall remain in place and be utilized.

b. Second Cleaning:

(1) After the first cleaning, the Work Area shall be vacated for twelve hours to allow fibers to settle.

(2) All objects and surfaces in the Work Area shall be HEPA - vacuumed and wet cleaned for a second cleaning.

(3) A thin coat of lockdown encapsulant shall be applied to all plastic covered surfaces in the Work Area.

(4) When the encapsulant is dry, second layer of polyethylene sheeting on the walls, ceiling and floors shall be removed. Do not remove seals from doors, windows, Isolation Barriers or disconnect the negative pressure equipment.

c. Third Cleaning:

(1) A minimum of four hours after the second cleaning, all the surfaces in the Work Area shall be HEPA-vacuumed and wet cleaned for a third cleaning.

(2) Upon the request of the asbestos abatement contractor, the Third-Party Air Monitor will do final visual inspection for re-occupancy. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

(3) When the Work Area passes the Third-Party Air Monitor's visual re-occupancy inspection, air sampling shall not begin until at least one hour after the completion of the third cleaning. The Third-Party Air Monitor shall perform air monitoring using aggressive testing techniques. The Third-Party Air Monitor will approve re-occupancy if the specified fiber count in the Work Area is achieved according to the Third-Party Air Monitor.

(4) When the Work Area passes the re-occupancy test, all controls and seals established shall be removed.

(5) The cleaned layer of the surface barriers shall be removed from walls and floors.

(6) The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

d. Final Barrier Removal:

(1) Upon receipt of acceptable clearance testing results, polyethylene sheeting and Isolation Barriers shall be removed and disposed accordingly as asbestos-containing material.

(2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.

e. The Third-Party Air Monitor will conduct a final visual observation. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization.

C. Removal of ACM Roofing and Flashing Materials utilizing NYC DEP § 1-107 Foam Procedure for Roof Removal shall be as follows:

1. Preparation procedures:

a. These procedures apply only to the removal of asbestos-containing roofing material (ACRM) from exterior roof surfaces. The work area on the roof shall be cordoned off with clearly visible barriers such as caution tape, and only authorized persons shall have access.

b. The foam or viscous liquid shall be non-toxic, shall not require special respiratory protection for handling, and shall not affect the handling and disposal of the waste.

c. The foam or viscous liquid shall coat and maintain a stable blanket (minimum 1" thickness) for the duration of the removal process and shall leave an identifiable colored residue when it dissipates.

d. The foam or viscous liquid shall wet the ACRM. The ACRM shall be kept wet through the bagging process.

e. Persons entering the work area shall wear correctly-fitting, good traction rubber boots.

f. Abatement shall not be carried out during adverse weather conditions (e.g., precipitation, high winds, ambient temperature below 32 degrees Fahrenheit, etc.).

g. The worker decontamination unit may be attached to each work area at an entry/exit from each work area, or may be remote, in which case it shall be equipped with an airlock at the entrance. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet of ACRM. For 1,000 square feet or more of ACRM removal, a separate waste decontamination facility shall be located at an entry/exit from each work area. Remote holding areas for the asbestos containing waste shall comply with Title 16, Chapter 8, Rules of the City of New York (16 RCNY 8 et. seq.).

h. Movable objects shall be removed from the work area, or kept in place and wrapped in one sheet of fire retardant 6 mil plastic sheeting.

i. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings shall be sealed with 2 layers of fire retardant 6 mil plastic or fitting with HEPA filters when appropriate. Temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange instead of sealing vents, air intakes, etc., with 2 layers of plastic or HEPA filters. Drains may be equipped with 5 micron filtering system in lieu of being sealed.

j. Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of fire retardant 6 mil plastic up to a height of at least six feet.

k. The asbestos abatement contractor shall be responsible for protection of the interior spaces beneath the roof.

l. All office equipment and furniture, including but not limited to desks, chairs, computers, printers, cabinets, etc., carpeted and wooden floors shall be covered with one layer of 6- mil plastic sheeting.

m. The asbestos abatement contractor shall be responsible for any damage that may occur in the interior spaces, including but not limited to office equipment, furniture, floors, etc., beneath the roof during all phases of the roof abatement.

n. The asbestos abatement contractor shall provide temporary roof protection consisting of 10-mil polyethylene sheeting following abatement over the open roof areas. Strict coordination with the General Asbestos abatement contractor, Construction Project Manager and/or Architect is required and necessary during this phase of abatement.

o. Preliminary examination shall be conducted and precautions shall be taken to prevent damage to the interior of the building, including but not limited to office equipment, furniture, carpeted and wooden floors, etc., and to ensure no adverse effect on the structural stability of the roof due to the abatement activity.

p. Abatement activities shall not be carried out during adverse weather conditions (e.g., precipitation, heavy winds, etc.).

q. The floor area between the remote decontamination facility and the Work Area must be protected with 2 layers of 6-mil. polyethylene sheeting suitably anchored.

r. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings are to be sealed with two layers of 6-mil plastic or fitted with HEPA-filters where appropriate. In lieu of sealing vents, air intakes, etc., with two layers of plastic or HEPA-filters, temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange. Drains may be equipped with 5 micron filtering systems in lieu of being sealed.

s. Pre-Removal Inspections:

(1) Prior to removal of any ACM, the Asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.

(2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

(3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Roofing and Flashing Materials:

a. The asbestos abatement contractor shall be responsible for the removal of all roofing components, including multiple layers of built-up membrane, tar, vapor barrier and/or flashing down to the substrate/deck.

b. Prior to actual removal, the built-up roofing shall be blanketed and wetted with a minimum 1" coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.

c. Hand-held power tools used to drill, cut into, or otherwise disturb the ACRM shall be equipped with the HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.

d. Abatement shall not be performed in adverse weather conditions (e.g., precipitation, heavy winds, etc.). Asbestos abatement contractor shall protect all exposed roof during adverse weather conditions.

e. Portable HEPA-vacuum machines shall be available during abatement.

f. After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed, and then wet-cleaned and transferred into the shower room for double bagging. The double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container.

3. Following Removal of ACM Roofing and/or Flashing:

a. Upon completion of the abatement in roof work area, clean-up procedures shall involve removal and bagging of:

b. The asbestos containing roofing material (ACRM)

c. Visible accumulations of asbestos containing waste

d. All excess foam or similar viscous liquid

e. All debris, and shall be followed by a thorough wet cleaning.

f. All tools shall be wet cleaned and HEPA-vacuumed, and then removed from the work area upon completion.

g. Following the removal of all debris, the work area shall be thoroughly wet cleaned. The work area shall be allowed to dry completely before the visual inspection is conducted. The inspection shall confirm the absence in the work area of:

(1) ACM, debris, bagged ACM waste,

(2) Excess foam or other viscous liquid.

h. If the work area fails visual inspection, it shall undergo another wet cleaning and/or HEPA vacuuming until it passes the visual inspection.

i. When the visual inspection and clearance testing is successful, all plastic may be removed.

j. Air monitoring shall be conducted in accordance with the relevant provisions of Air sampling shall be conducted in compliance with NYC DEP Title 15 Chapter 1, §1-41 Air Sampling Schedule.

D. Removal of ACM from Vertical Exterior Surfaces utilizing NYCDEP Title 15, Chapter 1 §1-109 Abatement from Vertical Exterior Surfaces procedures shall be as follows:

Preparation procedures: This procedure shall apply to the abatement of asbestos-containing materials from vertical exterior surfaces such as, but not limited to caulking or glazing compounds, asphaltic materials or tar, cement siding or shingles (including transite), paints, sealants coping stone caps or clay roof tiles.

a. The entire surface to be abated and ground-level perimeter shall be considered the work area unless partitions and warning tape are used to define the work area.

b. A restricted area shall be established using warning tape extending at least 25 feet from the affected areas of the building or to the nearest vertical obstruction or the curb.

c. The restricted area may be entered only by certified workers or authorized visitors.

d. Before plasticizing, the restricted area shall be inspected for ACM debris and, if necessary, pre-cleaned using HEPA vacuums and wet methods.

e. All openings to the building or structure’s interior which are within 25 feet of the affected ACM shall be closed and sealed.

f. Scaffolding erected to access the ACM shall be constructed, maintained, and used in accordance with applicable federal, state, and city laws.

g. Horizontal surfaces beneath the affected ACM shall be covered with two layers of fire-retardant 6-mil plastic to a width of six feet.

h. Elevated platforms being used to access the affected ACM shall be plasticized with two layers of fire-retardant 6-mil plastic, which shall extend up from the platform to at least the height of the mid-rail on three sides, and shall be attached directly to the building just below the surfaces under abatement.

i. The ground-level restricted area shall be cleared of all moveable objects and plasticized with two sheets of fire-retardant 6-mil plastic, which shall be extended one foot up the side of the building. The plasticized area shall be ten feet wide for every floor up to a maximum width of thirty feet, or to the curb. This plastic shall be cleaned, replaced, and disposed of as asbestos waste at the end of each shift.

j. Sidewalk bridges in the restricted area shall be covered with two layers of fire retardant 6-mil plastic, placed over and secured to the bridge, spread across the full width, draped over the side to ground level, and extended to a width of at least thirty feet.

k. Establish a remote decontamination unit in accordance with Section 3.01 within the restricted area.

l. Construct all elevated work platforms a minimum of one foot below the surface to be abated.

m. Pre-Removal Inspections

(1) Prior to removal of any ACM, the asbestos abatement contractor shall notify the Project Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.

(2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

(3) Following the Project Monitor’s approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Materials:

a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.

b. Remove the caulk using hand tools such as knives or scrapers.

c. Exercise caution when removing caulking material to prevent damage to windows or skylight openings.

d. Remove any residual asbestos-containing caulking material from the substrate using wet cleaning methods and nylon-bristled hand brushes. The use of metal bristled brushes is prohibited.

e. Place the removed material immediately into a properly labeled 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.

f. Following the completion of removal of caulking, all visible residues shall be removed from the substrate.

g. Air sampling shall be conducted in compliance with NYC DEP Title 15 Chapter 1, §1-41 Air Sampling Schedule. This sampling shall be performed by the Third Party Air Monitoring Firm.

3. Following Removal of ACM :

a. The stripped substrate shall be HEPA vacuumed and wet-wiped.

b. A visual clearance inspection shall be conducted by the asbestos handler supervisor and project monitor after the work area dries, to ensure the absence of ACM residue or debris in the work area.

c. After the inspection is completed, the warning tapes and barriers may be removed.

d. The clearance inspection shall be documented in the log and the project air sampling log.

e. Air monitoring shall be conducted in accordance with relevant provisions.

f. Asbestos abatement contractor shall request and pass a visual inspection performed by the consultant before proceeding to the next step. Documentation of passing this inspection shall be recorded in a daily logbook.

g. The Third-Party Air Monitor will conduct a visual observation of the Work Area to verify the absence of asbestos-containing waste materials.

h. If the Work is accepted by the Third-Party Air Monitor based on the inspection, asbestos abatement contractor shall be notified. Conduct the following activities in accordance with the contract and all applicable laws, codes, rules and regulations:

(1) All waste shall be removed from the Work Area and holding areas.

(2) All tools and equipment are to be removed and decontaminated in the decontamination enclosure system.

i. If the Work is not approved, the Third-Party Air Monitor will inform Asbestos abatement contractor who will then HEPA-vacuum and/or wet-clean the Work Area. The Third-Party Air Monitor will then perform a subsequent visual observation. This process will continue until the Third-Party Air Monitor accepts the Work Area as clean.

j. Final Barrier Removal

(1) Upon receipt of acceptable observation results, polyethylene sheeting and barrier tape shall be removed and disposed accordingly as ACM.

(2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.

(3) The Third-Party Air Monitor will conduct final visual inspection. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization. Other Information: Extra time required to clean Work Areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

4.02 MAINTENANCE OF CONTAINED WORK AREA AND DECONTAMINATION ENCLOSURE SYSTEMS

A. Ensure that barriers are installed in a manner appropriate to the expected weather conditions during the project and for its duration. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect barriers at the beginning and end of each work period.

B. Visually inspect non-Work Areas and the decontamination enclosure system for water leakage. Check the floor below, ceiling and walls, and view beneath/or around the decontamination enclosure system, for signs of leakage. Perform the visual inspection a minimum of two times for each 8-hour work shift.

PART 5 – ASBESTOS WASTE MANAGEMENT

5.01 ACM WASTE REQUIREMENTS

A. The asbestos abatement contractor and all sub-asbestos abatement contractors are specifically alerted to the illegal practice of combining asbestos-containing waste (ACW) from one project with the ACW of other projects without using the services of a permitted waste transfer station as defined by 6 NYCRR Part 360 and 364. As part of the shop drawing submittals, the asbestos abatement contractor must submit for approval the proposed method of transportation and disposal that will be utilized to manage the ACW of this Contract. If a permitted transfer station is to be used, the cost shall be included in the work. The asbestos abatement contractor must submit a waste manifest consistent with whatever approved method is utilized as part of the invoicing and payment procedures.

B. The asbestos abatement contractor shall maintain compliance with the strictest set of regulations of Title 15, Chapter 1 of RCNY, NYC LL 70/85, NYS DOL ICR 56, USEPA, Asbestos Regulation 40 CFR Section 61.152, 29 CFR 1926.1101, 29 CFR 1910.1200 (F) of OSHA's Hazard Communication Standards, and other applicable standards.

NOTE: Any penalties incurred for failure to comply with any of the above regulations will be the sole responsibility for fines imposed due to negligence of the Asbestos abatement contractor.

C. When presenting ACW for storage at the generation site, the asbestos abatement contractor shall:

1. Wet down ACW in a manner sufficient to prevent all visible emissions of dust into the air.

2. Seal material in a leak tight container while wet.

3. Keep ACW separate from any other waste.

D. When presenting ACW for storage away from the site of generation, the Asbestos abatement contractor shall:

1. Ensure that ACW has been properly packaged as per requirements above.

2. Examine the containers of ACW to ensure that there are no breaks in the containers and that no visible dust is being released into the air.

3. If examination reveals damage to a container of ACW the Asbestos abatement contractor or person accepting the waste shall immediately wet down the ACW and repackage it into a clean leak tight container. The subsequent repackaging shall be the financial responsibility of the Asbestos abatement contractor and occur at no extra cost to the City.

4. Keep ACW separate from any other waste.

E. When storing ACW – The Asbestos abatement contractor shall:

1. Ensure that the ACW has been sufficiently wetted down in tight containers.

2. Re-wet and repackage any damaged containers.

3. Maintain at storage site an adequate supply of spare leak tight containers.

4. Maintain at storage site an adequate supply of amended water.

5. Keep ACW separate from any other waste.

6. Keep ACW in a secured, enclosed, and locked container.

7. If the asbestos abatement contractor has intention of sorting a quantity of ACW greater than or equal to 50 cubic yards, the Asbestos abatement contractor shall:

a. Submit a written request and receive written approval from the City.

F. When presenting for transport, the asbestos abatement contractor shall:

1. Ensure that ACW has been sufficiently wetted down.

2. Examine the integrity of the container’s airtight seal.

3. Re-wet and repackage any damaged containers.

4. Keep ACW separate from all other waste.

5. Ensure that a person transporting asbestos waste holds a valid permit issued pursuant to law.

6. Frequency of Waste Removal:

a. Properly packaged and labeled asbestos waste shall be removed from the site on a daily basis. Under no circumstance shall asbestos waste be stored on site without written approval from the City. The Waste Hauler and landfill shall be as indicated on the notifications to regulatory agencies.

G. Waste Load-out Through Equipment Decontamination Enclosure (Full Decontamination Facility): Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick polyethylene sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA-vacuuming in a designated part of the Work Area. Move wrapped asbestos waste to the equipment washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil polyethylene sheeting, as the item's physical characteristics demand. Air volume shall be minimized, and the bags or sheeting shall be sealed airtight with tape.

1. The clean containerized items shall be moved to the equipment decontamination enclosure holding area pending load-out to storage or disposal facilities.

2. Workers who have entered the equipment decontamination enclosure system from the uncontaminated non-Work Area shall perform load-out of containers from the decontamination enclosure holding area. Dress workers moving asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the Work Area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the Work Area. Ensure that contaminated workers do not exit the Work Area through the equipment decontamination enclosure system.

3. Thoroughly clean the equipment decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.

4. Labeled ACM waste containers or bags shall not be used for non-ACM debris or trash. Any materials placed in labeled containers or bags, including those turned “inside-out”, shall be handled and disposed of as ACM waste.

H. All asbestos materials, wastes, shower water, polyethylene, disposable equipment and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York Department of Environmental Conservation and New York City Department of Sanitation.

I. All asbestos materials shall be prepared for transportation in accordance with this specification and all applicable Federal, State, County and City Regulations. asbestos abatement contractor shall submit the following documentation:

1. Where applicable, an EPA Generator's identification number which has been obtained from the EPA for all asbestos waste generated from the project.

2. Applicable State Waste Hauler license and registration numbers.

3. Federal Hazardous Materials Waste Hauler number.

4. Designated landfill EPA Permit numbers.

J. Prior to loading asbestos waste the enclosed cargo areas (dumpster) shall be prepared as follows:

1. Clean via HEPA-vacuum and wet wipe techniques the enclosed cargo areas of all visible debris prior to preparing with polyethylene.

2. Line the cargo area with two layers of 6-mil polyethylene sheeting to prevent contamination from damaged or leaking containers. Floor sheeting shall be installed first and extend up the walls a minimum of 24-inches. Wall sheeting shall be overlapped and taped securely into place.

K. Asbestos-containing waste shall be placed on level surfaces in the cargo area of the dumpster and shall be packed tightly to prevent any shifting or tipping of the waste during transportation.

L. Asbestos-containing waste shall not be thrown into or dropped from the dumpster. All material shall be handled carefully to prevent rupture of the containers.

M. All personnel engaged in handling and loading of asbestos contaminated waste outside of the Work Area shall wear protective clothing. The disposable clothing shall include head, body and foot protection and color of clothing shall be different from abatement personnel in the Work Area. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters.

N. Asbestos abatement contractor shall immediately clean debris or residue observed on containers or surfaces outside of the Work Area. Cleaning shall be via HEPA equipped wet/dry vacuums only.

O. All asbestos-containing waste shall be transported from the abatement site to the landfill by a registered Waste Hauler. When transporting ACW:

1. Ensure that the ACW has been sufficiently wetted down in a leak tight container.

2. Re-wet and repackage any damaged containers.

3. Maintain at storage site an adequate supply of spare leak tight containers.

4. Maintain at storage site an adequate supply of amended water.

5. Keep ACW separate from any other waste.

P. Keep ACW in a secured, enclosed, and locked container.

Q. Waste transport documents shall conform to the requirements of the U.S. Department of Transportation, Hazardous Materials Transportation Regulation, 49 CFR Part 173 and EPA 40 CFR 61.150 (d)(1)(2). Shipping documents shall be clearly marked with the required designation "RQ Asbestos". Asbestos abatement contractor shall provide a copy of this document to the City.

R. A uniform hazardous waste manifest shall be prepared by the asbestos abatement contractor and signed by the asbestos abatement contractor each time the asbestos abatement contractor ships a dumpster load of Asbestos-Containing Waste Material. The uniform hazardous waste manifest shall include the site of waste generation, the names and addresses of the Transporter, the asbestos abatement contractor, and the landfill operator with information on the type and number of asbestos-waste containers, time and date. Asbestos abatement contractor shall provide the Construction Project Manager, Third-Party Air Monitor or authorized designated representative with signed copies of the waste manifest before each departure.

S. Asbestos abatement contractor or his/her Waste Hauler shall transport asbestos-containing waste material from the abatement site directly to the specified disposal site. Asbestos abatement contractor or their Waste Hauler shall not accept material from any other site when transporting asbestos-containing waste material from the abatement site. The authorized DDC representative or Construction Project Manager reserves the right to travel with asbestos abatement contractor’s Waste Hauler to the waste disposal site. No intermediate storage of waste material (i.e., asbestos abatement contractor’s warehouse) shall be permitted.

T. Final or progress application for payments will not be processed unless all hazardous waste manifests generated to date have been received and reviewed by the Construction Project Manager.

U. All asbestos materials, wastes, shower water, polyethylene disposable equipment and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York State Department of Environmental Conservation and the New York Department of Sanitation.

V. Asbestos abatement contractor shall transport all sealed drums to a landfill disposal site approved by the Department of Environmental Conservation and the EPA. Transportation shall be performed by a New York State registered Waste Hauler, where required. When presenting the ACW for disposal the Asbestos abatement contractor or sub Asbestos abatement contractor shall:

1. Ensure that waste container is properly labeled according to the National Emission Standard for Hazardous Air Pollutants (NESHAP); Asbestos Revision, 40 CFR, Part 61, Subpart M. The labels shall include the name of the waste generator and the location where the waste was generated.

2. Comply with all applicable orders issued pursuant to asbestos disposal.

3. Ensure that ACW has been sufficiently wetted down.

4. Re-wet and repackage any damaged containers.

5. Keep ACW separate from all other wastes.

W. Asbestos abatement contractor shall notify the waste disposal site, at least 24 hours prior to transportation of asbestos contaminated waste to be delivered. Asbestos abatement contractor shall determine if a larger notification period is required.

X. At the site asbestos abatement contractors or Waste Hauler trucks shall approach the dump location as close as possible for unloading asbestos waste. Containers shall be carefully placed in the ground. Do not throw containers from truck.

Y. Asbestos abatement contractor or Waste Hauler shall inspect containers as they are unloaded at the disposal site. Material in damaged containers shall be repacked in empty containers, as necessary.

Z. Asbestos abatement contractor or Waste Hauler shall not remove asbestos-containing waste Material from drums unless required to do so by the disposal site City. Used drums shall be disposed of as asbestos-asbestos contaminated waste.

AA. All personnel engaged in unloading of the containers at the waste site shall wear protective clothing. The disposable clothing shall include head, body and foot protection. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters. Workers shall remove their protective clothing at the disposal site, place it in labeled disposal bags and leave them with the deposited waste shipment.

BB. For the compaction operation, the asbestos abatement contractor shall ensure that disposal sites personnel have been provided with personal protective equipment by the disposal operator. If the disposal site City has not provided this protective equipment, the asbestos abatement contractor shall supply protective clothing and respiratory protection for the duration of this operation (PAPR respirators are mandatory).

CC. If containers are broken or damaged, the asbestos abatement contractor or Waste Hauler shall, using personnel who are properly trained and wearing proper protective equipment, shall repackage the waste in properly labeled containers.

Asbestos abatement contractor shall then clean the entire truck and its contents using HEPA-vacuums and wet cleaning techniques until no visible residue is observed.

DD. Following the removal of all containerized waste, the asbestos abatement contractor shall decontaminate the truck cargo area using HEPA-vacuums and/or wet cleaning techniques until no residue is observed. All 6-mil polyethylene sheeting shall be removed and discarded as asbestos-containing waste material along with contaminated cleaning material and protective clothing, in containers at the disposal site.

EE. The transporter(s) of all asbestos waste shall not back-haul any items on his return from landfill/disposal site.

FF. All asbestos waste shall be disposed of in an approved Asbestos Landfill site only.

1. NO PERSON UNDER ANY CIRCUMSTANCES SHALL ABANDON ACW. The same shall be disposed of only by certified persons in approved landfills.

2. A manifest form will be signed by the Landfill documenting receipt and acceptance of the asbestos-containing waste. This manifest will be furnished to the City of New York within thirty calendar days from the project completion date.

3. It is the responsibility of the Asbestos abatement contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Asbestos abatement contractor must comply fully with these regulations and all appropriate U.S. Department of Transportation, EPA and other Federal, State and Local entities' regulations and all other current legal requirements.

4. The asbestos abatement contractor shall obtain an agreement from the transporter (s) that the practice of "Back-Hauling" will not be engaged in, with respect to any and all waste loads taken from this site during the work.

5. The asbestos abatement contractor will document actual disposal of the waste at the designated landfill by having completed a Disposal Certificate and will provide a copy of the same to the Department of Design and Construction.

PART 6 – ACCEPTANCE

6.01 ACCEPTANCE

Upon satisfactory completion of all decontamination procedures, a certificate will be issued by the Construction Project Manager with copies to all parties.

A. A letter of Compliance stating that all the work on the project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations.

B. All warranties as stated in the Specifications.

END OF SECTION 028213

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SECTION 03 73 30 - CONCRETE RESTORATION WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract]

1.2 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 spalled concrete and cleaning and coating of exposed steel reinforcement.

1.3 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.

B. American Society of Testing and Materials (ASTM)

C. Steel Structures Painting Council (SSPC)

1. Hand Tool Cleaning - SP2
2. Power Tool Cleaning - SP3

D. International Concrete Restoration Institute (ICRI)

1.4 SUBMITTALS

A. Product Data

1. Provide manufacturer's information on the anti-corrosion coating and 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.

3. Manufacturer's Field Reports: Submit field report from manufacturer of repair mortar indicating areas of surface preparation and mortar placement inspected.

4. Qualifications

   a. Provide proof of Installer and Manufacturer qualifications specified under "Quality Assurance".

5. Mock-up: Provide mock-ups as indicated under Quality Assurance.

1.5 QUALITY ASSURANCE

A. Qualifications

1. Installer: Company specializing in the Work of this Section shall have a minimum of three years experience and projects with similar quantity of materials. Contractor shall be properly trained by the repair mortar manufacturer and shall have a certificate of training on file from the manufacturer.
2. Manufacturer: Company specializing in the manufacture of concrete repair mortars to be used in this Contract shall have a minimum of three years experience.

B. Manufacturer's Representative

1. All work of this Section shall be performed under the overall supervision of the repair material manufacturer's representative. The representative shall attend pre-construction meetings to instruct the contractor on the proper usage of the material and to make regular visits during the course of construction to ensure that surface preparation and method of installation is acceptable.

C. Job Mockups

1. Prior to performing the work of this Section, prepare a sample panel of not less than 12 sq. ft. of concrete repair work, including a separate mock-up of the surface preparation. For formed repairs, provide mockup of pour to ensure that material will be properly vibrated and finish will be without voids. Do not proceed further with the work until the Commissioner has approved the sample panel. Sample shall be a portion of the area to be restored and may be kept if approved.

1.6 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.

C. Do not store liquid material in hot sun. Keep material from freezing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not apply if the temperature is below 50ºF or above 85ºF unless the material manufacturer is consulted for recommendations.

B. Do not use frozen materials or materials coated with ice or frost.

C. Do not apply when there is expectation of rain within 24 hours.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products by one of the following:
1. Sika Corp, Lyndhurst, NJ 07071
2. Strongwall Industries, Ridgewood, NJ 07451
3. Mapei Corp, Deerfiled Beach, FL 33442
4. Kaufman Products Inc. Baltimore MD 21226
5. Approved equal.

2.2 MATERIALS

A. Structural Repair Concrete - Non-formed/overhead Application

1. Shall have non-shrink characteristics and be of high compressive and bond strength. Material shall be non-sag, capable of being troweled in place for vertical and overhead applications without the need of formwork and conform to the following properties:

a. Compressive strength of 5000 psi in 28 days when tested in accordance with ASTM C109.
b. Bond strength of 1700 psi in 28 days when tested in accordance with ASTM C882 (modified). Results of tests showing failure of base material is acceptable alternative.
c. Flexural strength of 1100 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293 or 1400 psi when tested in accordance with ASTM C348.
d. Maximum linear length change shall be 0.080% when tested in accordance with ASTM C157 (dry cure).
e. Modulus of elasticity shall be between 3.0 and 3.5 x 10^6 when tested in accordance with ASTM C469.

2. Repair concrete/mortar shall be:

a. Sikatop 123 Plus as manufactured by Sika.
b. SWI-88 as manufactured by Strongwall Industries.
c. Planitop 23 by Mapei.
d. Patchwell VO or Duracrete II VOFT by Kaufman Products Inc. or
e. Approved equal

B. Structural Repair Concrete/Mortar - Horizontal Application

1. Shall have non-shrink characteristics and be of high compressive and bond strength. Material shall be capable of being poured or troweled in place for horizontal applications and for formed applications of sufficient dimensions to allow for proper placement of material and conform to the following properties:

a. Compressive strength of 5000 psi in 28 days when tested in accordance with ASTM C109.
b. Slant/shear bond strength of 1700 psi in 28 days when tested in accordance with ASTM C882. Results of tests showing failure of base material is acceptable alternative.
c. Flexural strength of 1100 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293 or 1400 psi when tested in accordance with ASTM C348.
d. Maximum linear length change shall be maximum of 0.08% at 28 days when tested in accordance with ASTM C157.
e. Modulus of elasticity shall be between 3.0 and 3.5 x 10^6 when tested in accordance with ASTM C469.

2. Repair concrete/mortar shall be:

   a. Sikatop 122 Plus as manufactured by Sika.
   b. SWI-81 as manufactured by Strongwall Industries.
   c. Mapecem 202 by Mapei – only 1450 for C882.
   d. Duracrete II, Duracrete II FT, Patchwell or Patchwell Deep by Kaufman Products Inc. or
   e. Approved equal

C. Structural Repair Concrete/Mortar - Formed Application

1. Shall have non-shrink characteristics and be of high compressive and bond strength. Material shall be flowable, capable of being poured in formed repairs of small dimensions without forming voids and conform to the following properties:

   a. Compressive strength of 5000 psi in 28 days when tested in accordance with ASTM C109.
   b. Bond strength of 1700 psi in 28 days when tested in accordance with ASTM C882 modified). Results of tests showing failure of base material is acceptable alternative.
   c. Flexural strength of 1100 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293 or 1400 psi when tested in accordance with ASTM C348.
   d. Maximum linear length change shall be maximum of 0.08% at 28 days when tested in accordance with ASTM C157.
   e. Modulus of elasticity shall be between 3.0 and 3.5 x 10^6 when tested in accordance with ASTM C469.

2. Repair concrete/mortar shall be:
   a. Sikatop 111 Plus as manufactured by Sika.
   b. SWI-81 as manufactured by Strongwall Industries.
   c. Planitop 15 SCC by Mapei or
   d. Approved equal

D. Anti-corrosion Coating

1. Corrosion-inhibiting, epoxy/acrylic resin, protective coating for steel reinforcing bars that will not form a vapor barrier or bond break with the repair mortar with the following properties:

   a. Bond strength of 1500 psi in 2 hours when tested in accordance with ASTM C882.
   b. Flexural strength of 2000 psi in 28 days when tested in accordance with ASTM C78.
   c. Tensile strength of 600 psi in 28 days when tested in accordance with ASTM C496

2. Anti-corrosion coating shall be:

   a. Armatec 110 as manufactured by Sika.
   b. Planibond 3C by Mapei.
   c. Surepoxy HM24 by Kaufman Products Inc. or

d. Approved equal

E. Miscellaneous Materials

1. Water: Potable water, ASTM C94
2. J hooks: 1/4" diameter threaded rod, Type 316 stainless steel
3. Epoxy paste adhesive: ASTM C882
4. 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. As an example, the Contractor may decide to form an application on a vertical surface in lieu of using the overhead repair mortar. 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 spalled and weak concrete and remove all loose and foreign material. Chip substrate by bush hammering or other mechanical means acceptable to the repair concrete/mortar manufacturer to obtain a minimum aggregate-fractured surface profile of 1/8±" conforming to an ICRI CSP 7 or greater surface preparation. Minimum depth of repair shall be 1/2", with the perimeter of the repair having a minimum of 1/8" in depth. Feather edging is not permitted.
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.
4. Where additional reinforcement is not shown to be anchored in and for patches greater than $1^1/_2$" in depth and overhead patches, install stainless steel threaded J hooks set in epoxy paste adhesive. Anchor is to be 3/4" clear minimum from finished face of repair. Hooks are to be embedded a minimum of 3" into concrete, installed diagonally to plane of concrete surface. Holes are to drilled 1/8" larger than rod diameter and shall be cleaned thoroughly. Space hooks at 16" o.c.

3.3 ANTI-CORROSION COATING APPLICATION

A. Mix anti-corrosion coating in accordance with manufacturer's instructions. Apply to dry reinforcing steel using a stiff bristle brush. Brush in well to ensure continuous coverage. Apply in two coats of approximately 10 mils each or as per manufacturer's latest recommendations.

B. Protect coated steel from weather and allow to dry a minimum of 30-45 minutes between coats or repair concrete/mortar application. However, apply repair material within 20 hours after last coating. If a 20 hour period elapses, reapply bonding agent and allow to dry as above.

3.4 REPAIR CONCRETE/MORTAR APPLICATION

A. Mix structural repair concrete in accordance with manufacturer's instruction. Follow time limits set by manufacturer to prevent hardening of material prior to placement. For material requiring extension with aggregate due to depth of repair, provide 3/8" aggregate of proportions specified by the repair mortar manufacturer.

B. Prior to application of material, thoroughly saturate surface with water. Remove any standing water prior to patching.

C. Apply a scrub coat of the repair material of proportions determined by manufacturer (indicate in written repair procedure). While still damp, apply repair concrete/mortar.

D. Apply material behind and around rebars first to completely fill void.

E. Overhead/Vertical Repairs - Apply repair concrete/mortar, non-formed/overhead application, on vertical and overhead members with a trowel or other such device, all in accordance with the manufacturer's recommendations. Apply in lifts of up to 2" or as determined by material manufacturer at a consistency that the material will not slump. Follow manufacturer's instructions for scoring,

curing, priming, and approximate time between layers. Do not leave voids. Trowel exposed surface smooth and to same shape and finish as the adjacent existing surface.

F. Horizontal Repairs - Pour or trowel repair concrete/mortar, horizontal application, into hole until it is to the same level and at the same pitch as the surrounding slab. For deep repairs, extend mortar with clean aggregate by the amount recommended by the manufacturer. Provide finish as follows:

1. Surfaces to receive bonded applied cementitious applications such as full-set terrazzo and vitreous ceramic tile: Darby and float surface and follow with a rough broom finish.
2. Surfaces to receive floor coverings such as resilient flooring, thin-set terrazzo and vitreous ceramic tile, carpeting, wood floors, or surfaces which are intended as walking surfaces such as exposed or painted (cement finish), unless specified otherwise: Steel trowel surface to a smooth plane finish, free of score marks, grooves, depressions and ripples with a tolerance no greater than ±1/8" in ten feet.
3. Surfaces intended to receive roofing, waterproofing membranes: Darby and float surface. Leave surface free from depressions, bulges, rough spots, and other defects.
4. Ramps, Exterior Concrete Steps: Level surface with wood float and follow with a broom finish perpendicular to direction of traffic.

G. Formed Repairs

1. Apply repair concrete, horizontal application, on vertical members where formwork can be utilized to confine the concrete and the width of repair permits its proper installation.
2. Apply flowable repair mortar for repairs to be formed, especially for thin repairs.
3. Place so as not to leave voids. Vibrate forms with pencil vibrator to removed air bubbles. Remove formwork as soon as possible and trowel exposed surface smooth and to same shape and finish as the adjacent existing surface.

3.5 CURING

A. As soon as surface of patch has hardened, cure patch a minimum of 48 hours by applying water-based acrylic curing compounds conforming to ASTM C309 or C1315, misting, wet burlap, etc. For patches to be covered with other material, only use curing compounds acceptable to the finish material manufacturer, unless the compound is removed prior to placing the finish material in a manner acceptable to the finish manufacturer.

B. Follow manufacturer's latest recommendations for any other recommendations. The curing provision of A above shall not be waved unless manufacturer does not permit it.

3.6 PROTECTION AND CLEANING

A. Clean all adjacent areas of excess material and clean all floors and walls of powder and droppings. Remove misplaced materials from surfaces immediately.

B. Protect material from freezing and from rainfall prior to final set.

3.7 FIELD QUALITY CONTROL

A. The Commissioner will inspect surfaces and reject any that contain cracks or other defects. The repair will be tested for soundness and structural integrity. Any defective areas shall be fixed at Contractor's expense. Notify the Commissioner in advance of the concrete repairs. The Commissioner will review the mixing, surface preparation and proper application of all materials.

B. Engage the services of the material manufacturer's representative to inspect the surface preparation, instruct in the proper usage of the material and to inspect the work throughout the project.

C. The testing laboratory will perform bond tests in accordance with ASTM C158, ”Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)” at a rate of 2 per session. The Contractor is to repair all test areas. Areas not meeting the requirements will have further tests performed. Remove all non-conforming areas.

END OF SECTION 03 73 30

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SECTION 05 12 00 - STRUCTURAL STEEL

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 DESCRIPTION OF WORK

A. Extent of structural steel work is shown on drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.

B. Structural steel is that work defined in American Institute of Steel Construction (AISC) "Code of Standard Practice" and as otherwise shown on drawings.

C. Use resources and energy to the fullest extent possible in the completion of the project. Resource-efficient aspects to be considered in completing this project include use of techniques that minimize waste generation, re-use of materials, on-site where possible, and recycling of waste generated during the construction process.

D. In the selection of the products and materials of this section, preference will be given to those with the following characteristics:

1. Water-based.
2. Water-soluble.
3. Can be cleaned up with water.
4. Non-flammable.
5. Biodegradable.
6. Low or preferably no Volatile Organic Compound (VOC) content.
7. Manufactured without compounds that contribute to ozone depletion in the upper atmosphere.
8. Manufactured without compounds that contribute to smog in the lower atmosphere.
9. Does not contain methylene-chloride.
10. Does not contain chlorinated hydrocarbons.
11. Contains the greatest extent possible of post-consumer or post-industrial waste.

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 SUBMITTALS

A. Refer to DDC general conditions section 01 33 00 “Submittal Procedures”

B. Product Data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts (each type), including nuts and washers.
3. Direct tension indicators.
4. Shear stud connectors.
5. Shop primers
6. Shrinkage-resistant grout.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Welding Certificates.

E. Source Quality Control Reports.

F. Shop Drawings:

1. No work may commence until all relevant shop drawings have been reviewed and final “Approval with no exceptions” has been granted.
2. Submit shop drawings prepared under supervision of a licensed in New York state professional engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures and diagrams.

a. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
b. Include embedment drawings.
c. 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.
d. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pre-tensioned and slip-critical high-strength bolted connections.
e. Identify members and connections of the seismic-load-resisting system.
f. Indicate locations and dimensions of protected zones.
g. Identify demand critical welds.
h. 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.
i. Provide setting drawings, templates, and direct installation of anchor bolts, embeds and other anchorages to be installed as work of this section.

G. Test Reports: Submit copies of reports of tests conducted on shop and field bolted and weld connections. Include data on type(s) of tests conducted and test results.

H. Surveys: Submit certified copies of each survey conducted by a licensed Surveyor and showing elevations and locations of base plates, embeds and anchor bolts to receive structural steel and final elevations and locations for major members. Indicate discrepancies between actual installation and contract documents.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. Building Code: New York City Building Code 2014.
2. American Institute of Steel Construction (AISC) Code of Standard Practice for Steel Buildings and Bridges.
3. AISC Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings, including the Commentary and Supplements thereto as issued.
4. AISC Specifications for prurally Exposed Structural Steel.
5. AISC Specifications for Structural Joints using ASTM A 325 or A 490 Bolts approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
6. American Welding Society (AWS) D1.1 Structural Welding Code - Steel.
7. ASTM A 6 General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use.

C. Qualifications for Welding Work:

1. Qualify welding processes and welding operators in accordance with AWS "Qualification" procedure.
2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests. If recertification of welders is required, retesting will be Contractor's responsibility.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site at such intervals to ensure uninterrupted progress of work.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration. If bolts and/or nuts become dry or rusty, clean and re-lubricate before use. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

E. Painted members shall be protected to minimize damage by use of nylon slings or other means.

1.7 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 MATERIALS

A. W Shapes: ASTM A 992, ASTM A 572, Grade 50, ASTM A 529, Grade 50 or ASTM A 913, Grade 50.

B. Channels, Angles, M and S shapes: ASTM A 572, Grade 50, ASTM A 529, Grade 50 or ASTM A 913, Grade 50.

C. Plates and Bars: ASTM A 36 (as noted on the drawings) or ASTM A 572, Grade 50.

D. Corrosion-Resisting Structural-Steel Shapes, Plates, and Bars: ASTM A 588, Grade 50.

E. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.

B. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 490, compressible-washer type with plain finish.

C. Zinc-Coated High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers.

1. Finish: Hot-dip zinc coating.
2. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with [mechanically deposited zinc coating finish.

D. Un-headed Anchor Rods: ASTM F 1554, Grade 55.

1. Configuration: Straight with a bottom plate with double-nut and washer assembly.
2. Nuts: ASTM A 563 heavy hex carbon steel.
3. Plate Washers: ASTM A 36 carbon steel.
4. Washers: ASTM F 436, Type 1, hardened carbon steel.

E. Headed Anchor Rods: ASTM F 1554, Grade 55, weldable, straight.

1. Nuts: ASTM A 563 hex carbon steel.
2. Plate Washers: ASTM A 36 carbon steel.
3. Washers: ASTM F 436, Type 1, hardened carbon steel.

F. Threaded Rods: A 572, Grade 50.

1. Nuts: ASTM A 563 heavy hex carbon steel.
2. Washers: ASTM F 436, Type 1, hardened.
3. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.

G. Sleeve Nuts: Made from cold-finished carbon steel bars, ASTM A 108, Grade 1018.

H. Electrodes for Welding: Comply with AWS Code.

2.3 STRUCTURAL STEEL PAINT

A. Exterior Exposed Structural Steel:

1. Surface Preparation:
   SSPC-SP6 – Commercial Blast Cleaning.
2. Primer:
   a. Carboline Carbozinc 858/859 organic zinc-rich primer @ 3.0-5.0mils d.f.t.
   b. Tnemec 594 organic zinc-rich primer @ 3.0-5.0mils d.f.t.
   c. Dupont 347/937 organic zinc-rich primer @ 3.0-5.0mils d.f.t.
   d. Sherwin Williams Zinc Clad III organic Zinc rich primer @ 3.0-5.0mils d.f.t.
   e. Sherwin Williams Recoatable Epoxy @ 4.0-6.0mils d.f.t. or
   f. Approved equal.
3. Intermediate:
   a. Carboline Carboguard 888/893 @ 3.0-5.0mils d.f.t.
   b. Tnemec Epoxoline 66/27 FC Typoxy @ 3.0-5.0mils d.f.t.
   c. Dupont 25 P @ 3.0-5.0 mils d.f.t.
   d. Sherwin Williams Recoatable Epoxy or Epolon II Multi mil @ 3.0-5.0mils d.f.t.;
   e. Approved equal.
4. Finish:
   a. Carboline Carbothane 133HB @ 3.0-5.0mils d.f.t.
   b. Tnemec Endurashield 73 @ 3.0-5.0mils d.f.t.
   c. Dupont Imron 326 @ 3.0-5.0mils d.f.t.
   d. Sherwin Williams Acrolon Multi mil or 218 HS Series @ 3.0-5.0mils d.f.t. or
   e. Approved equal.

B. Interior Exposed Structural Steel:

1. Surface Preparation:
   SSPC-SP3 – Power Tool Cleaning.
2. Primer:
   a. Carboline Carbocoat 150 Multibond @ 2.0-3.0mils d.f.t.
   b. Tnemec Series 37H Chem-Prime/27 Typoxy @ 3.0-5.0mils d.f.t.
   c. Dupont 25P @ 3.0-5.0mils d.f.t.
   d. Sherwin Williams Macro Poxy646 @ 3.0-5.0mils d.f.t. or
   e. Approved equal.
3. Intermediate Coat:
   a. Carboline Carboguard 888/893 @ 2.0-4.0mils d.f.t.
   b. Tnemec Epoxoline 66/27 FC Typoxy @ 2.0-4.0mils d.f.t.
   c. Dupont 25 P @ 2.0-4.0 mils d.f.t.
   d. Sherwin Williams Macro Poxy 646 @ 3.0-2.0-4.0mils d.f.t.or
   e. Approved equal.
4. Finish:
   a. Carboline Carbothane 133HB @ 3.0-5.0 mils d.f.t.
   b. Tnemec Endurashield 73 @ 3.0-5.0 mils d.f.t.
   c. Dupont Imron 226 @ 3.0-5.0 mils d.f.t.
   d. Sherwin Williams Acrolon Milti-Mil or 218 HS Series@ 3.0-5.0 mils d.f.t.
   e. Approved equal.

C. Steel Dunnage (where color not indicated by Commissioner):

1. Surface Preparation:
   SSPC-SP3 – Power Tool Cleaning.
2. Prime/Finish:
   a. Two coats Carbomastic 15 L.O. / 242 @ 4.0-5.0 mils d.f.t./ct.
   b. Two coats Tnemec 135/394 @ 3-5 mils d.f.t./ct.
   c. Sherwin Williams Acrolon Milti-Mil @ 3.0-5.0 mils d.f.t
   d. Approved equal

D. Steel Dunnage (where color indicated by Commissioner):

1. Surface Preparation:
   SSPC-SP3 – Power Tool Cleaning.
2. Primer:
   a. Carboline Carbomastic 15 L.O./242 @ 4.0-6.0 mils d.f.t.
   b. Sherwin Williams Macropoxy 646 or Duraplate 235 @ 4.0-6.0 mils d.f.t.
   c. Tnemec: 135/394 @ 3-4 mils d.f.t or
   d. Approved equal.
3. Intermediate/Finish:
   a. Two coats of Carbothane 133 HB @ 2.0-3.0 mils d.f.t. per coat.
   b. Tnemec Epoxoline 66/27FC Typoxy @ 2.0-4.0 mils d.f.t.
   c. Dupont 25 P @ 2.0-4.0 mils d.f.t.
   d. Sherwin Williams Macropoxy 646 or Epolon II Multimil Series @ 2.0-4.0 mils d.f.t. or

e. Approved equal

4. Finish:
   a. Carboline Carbothane 133HB @ 3.0-5.0 mils d.f.t.
   b. Tnemec Endurashield 73 @ 3.0-5.0 mils d.f.t.
   c. Dupont Imron 226 @ 3.0-5.0 mils d.f.t.
   d. Sherwin Williams Acrolon Multimil or 218 HS Series @ 4.0-6.0 mils d.f.t. or
   e. Approved equal.

E. Steel in Corrosive Environment to be Fire-proofed:

1. Surface Preparation:
   SSPC-SP3 – Power Tool Cleaning.
2. Shop Coat:
   a. Carboline Rustbond Penetrating Sealer @ 1.5-3.0 mils d.f.t.
   b. Tnemec 135 Chembuild @ 4-6 mils d.f.t.
   c. Sherwin Williams or
   d. Approved equal.

2.4 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that will be exposed in the finished Work unless they will function as weep holes by plugging with zinc solder and filing off smooth.
2. Galvanize lintels and shelf angles attached to structural-steel frame and located in exterior walls.

2.5 GROUT

A. Metallic Shrinkage Resistant Grout: ASTM C 1107, factory-packaged, metallic aggregate grout, mixed with water to consistency suitable for application and a 30-minute working time.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Firmix	Euclid Chemical Co.
b. Embeco 153	Master Builders
c. Ferrolith G	Sonneborn/Contech
d. Irontox	Toch Brothers
e. Kemox C	Sika Chemical
f. Vibra-Foil	W. R. Grace
g. Approved equal.	

B. Non-metallic Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

1. Products: Subject to compliance with requirements, provide one of the following; or approved equal:

a.	Euco N.S.	Euclid Chemical Co.
b.	Masterflow 713	Master Builders
c.	Five Star Grout	U.S. Grout Corp.
d.	Approved equal.	

2.6 FABRICATION

A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with the AISC "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360 and as indicated on final shop drawings.

1. Camber structural-steel members where indicated.
2. Fabricate beams with rolling camber up.
3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
4. Mark and match-mark materials for field assembly.
5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

C. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements of AWS D1.1/D1.1M.

D. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.

E. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

F. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP1- Solvent cleaning.

G. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work. Promptly notify Commissioner whenever design of members and connections for any portion of structure are not clearly indicated.

H. Connections:

1. Weld or bolt shop connections, as indicated.
2. Bolt field connections, except where welded connections or other connections are indicated.
3. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
4. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses)

and for temporary bracing to facilitate erection.

I. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with Research Council on Structural Connections "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts". Install with Direct Tension Indicators. Unless otherwise noted on the Drawings, all high-strength bolted connections shall be slip critical type.

J. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds and methods used in correcting welding work. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.

K. Holes for work by other trades:

1. Provide holes required for work by other trades securing to structural steel framing, and for passage of work by other trades through steel framing members, as shown on final shop drawings.
2. Provide threaded nuts welded to framing, and other specialty items as indicated to receive work by other trades.

2.7 SHOP PAINTING

A. General:

1. Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only.
2. Do not paint surfaces which are to be welded or high-strength bolted with friction-type connections, except paint certified for slip critical service.
3. Do not paint surfaces which are scheduled to receive sprayed-on fireproofing.
4. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

B. Surface Preparation: After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) methods as follows:

1. SP2 – Hand Tool Cleaning: Steel to be fire proofed.
2. SP3 – Power Tool Cleaning: Interior exposed steel and exterior exposed steel.
3. SP6 – Commercial Blast Cleaning: Exterior exposed steel and interior steel in aggressive environments (swimming pools, etc.) or architecturally exposed steel.

C. Painting: Within no more than six hours of surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness specified. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces.

PART 3 — EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates and other embedded items, with steel erector present, for compliance with requirements.

B. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.3 ERECTION

A. Surveys: Employ a licensed Land Surveyor for accurate erection of structural steel. Check elevations of concrete and masonry bearing surfaces and locations of anchor bolts and similar devices before erection work proceeds and report discrepancies to Commissioner. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with Commissioner.

B. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

C. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

D. Setting Bases and Bearing Plates:

1. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.
2. Set loose and attached base plates and bearing plates for structural members on wedges or other adjustable devices.

E. Anchor Rods:

1. Furnish anchor rods and other connectors required for securing structural steel to foundations and other in-place work.
2. Furnish templates and other devices as necessary for pre-setting rods and other anchors to accurate locations.

F. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow grout to cure.

G. Field Assembly:

1. Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming a part of a complete frame or structure before permanently fastening.
2. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly.
3. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
4. Level and plumb individual members of structure within specified AISC tolerances.
5. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
6. Splice members only where indicated and accepted on shop drawings.

H. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.

I. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment and removal of paint on surfaces adjacent to field welds.

J. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

K. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress. Finish gas-cut sections to achieve a sheared appearance when permitted.

3.4 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.

B. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections and damaged areas of shop paint to the standards for shop-cleaned steel. Apply paint to cleaned areas using same material as used for shop painting to same dry film thickness.

END OF SECTION 05 12 00

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SECTION 05 30 00 — METAL DECKING

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. The City of New York requires the Contractor to efficiently use resources and energy to the fullest extent possible in the completion of the project. Resource-efficient aspects to be considered in completing this project include use of techniques that minimize waste generation, re-use of materials, on-site where possible, and recycling of waste generated during the construction process.

B. In the selection of the products and materials of this section, preference will be given to those with the following characteristics:

1. Water-based.
2. Water-soluble.
3. Can be cleaned up with water.
4. Non-flammable.
5. Biodegradable.
6. Low or preferably no Volatile Organic Compound (VOC) content.
7. Manufactured without compounds that contribute to ozone depletion in the upper atmosphere.
8. Manufactured without compounds that contribute to smog in the lower atmosphere.
9. Does not contain methylene-chloride.
10. Does not contain chlorinated hydrocarbons.
11. Contains the least possible extent of post-consumer or post-industrial waste.

1.3 DESCRIPTION OF WORK

A. Extent of metal decking is indicated on drawings, including basic layout and type of deck units required.

B. Related Work Specified in Other Sections:

1. Structural Steel is specified in Section 051200.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and installation instructions for each type of decking and accessories. Include manufacturer's certification as may be required to show compliance with these specifications.

B. Shop Drawings:

1. No work may commence until all relevant shop drawings have been reviewed and final "Approval with no exceptions" has been granted.
2. Submit shop drawings prepared under supervision of a registered professional engineer, including layout and types of deck panels, anchorage details, and conditions requiring closure panels, supplementary framing, sump pans, cant strips, cut openings, special jointing or other accessories.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the following codes and standards, except as otherwise indicated or specified:

1. Building Code of City of New York, 2014 edition.
2. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members.
3. American Welding Society (AWS) D1.3 Structural Welding Code - Sheet Steel.
4. Steel Deck Institute (SDI) Design Manual for Floor Decks and Roof Decks.

B. Qualification of Field Welding: Qualify welding processes and welding operators in accordance with Welder Qualification procedures of AWS D1.1.

1. Welded decking in place is subject to inspection and testing. Remove work found to be defective and replace with new acceptable work.

C. Underwriters' Laboratories Label: Provide metal floor deck units listed in Underwriters' Laboratories (UL) Fire Resistance Directory, with each deck unit bearing the UL label and marking for specific system detailed.

PART 2 — PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

1. Metal Roof Deck Units:

a. Bowman/E.G. Smith (a division of Cyclops Corp.)
b. CMC Joist & Deck
c. Epic Metals Corp.
d. H. H. Robertson Company
e. Mac-Fab Products, Inc.
f. Vulcraft (a division of Nucor)
g. Wheeling Corrugating Co. or
h. Approved equal

2. Composite Metal Floor Deck Units:

a. Bowman/E.G. Smith (a division of Cyclops Corp.)
b. CMC Joist & Deck
c. Epic Metals Corp.
d. Mac-Fab Products, Inc.
e. H.H. Robertson Co.
f. Vulcraft (a division of Nucor)
g. Wheeling Corrugating Co. or
h. Approved equal.

2.2 MATERIALS

A. Steel for Painted Metal Deck Units: ASTM A 1008, SS Grade 40.

B. Steel for Galvanized Metal Deck Units: ASTM A 653, SS Grade 40, G60 coating, unless otherwise noted.

C. Miscellaneous Steel Shapes: ASTM A 36.

D. Sheet Metal Accessories: ASTM A 653, SS Grade 40, G60 coating, commercial quality, galvanized.

E. Galvanizing: ASTM A 924, G60.

F. Galvanizing Repair Paint: High zinc-dust content paint for repair of damaged galvanized surfaces complying with Military Specifications MIL-P-21035.

G. Flexible Closure Strips: Manufacturer's standard vulcanized, closed-cell, synthetic rubber.

H. Acoustic Sound Barrier Closures: Manufacturer's standard mineral fiber closures.

2.3 PAINT

A. Interior Exposed Galvanized Metal Decking:

1. Surface Preparation:
   a. SSPC-SPI – Solvent Cleaning
2. Primer:
   a. Carboline Carbocrylic 120 @ 1.0-2.0 mils d.f.t.
   b. Tnemec 115 Tneme-Deck @ 1.0-2.0 mils d.f.t.
   c. Dupont 25P @ 1.0-2.0 mils d.f.t.
   d. Sherwin Williams DTM Primer Finish @ 2.5-3.5 mils d.f.t. or
   e. Approved equal
3. Finish:
   a. Carboline Carbocrylic 3359 @ 2.0-3.0 mils d.f.t.
   b. Tnemec 115 Tneme-Deck @ 2.0-3.0 mils d.f.t.
   c. Dupont 25P @ 2.0-3.0 mils d.f.t.
   d. Sherwin Williams DTM Primer Finish @ 2.5-3.5 mils d.f.t. or
   e. Approved equal

B. Exterior Exposed Galvanized Metal Decking:

1. Surface Preparation:
   a. SSPC-SP1 – Solvent Cleaning (or as required by deck manufacturer)
2. Primer:
   a. Carboline Rust Bond @ 1.0-2.0 mils d.f.t.
   b. Sherwin Williams Procryl Universal Primer or Macropoly 646 @ 2.0-4.0 mils d.f.t.
   c. Tnemec: 66 Epoxoline/161 Tneme-Fascure @ 2-3 mils d.f.t. or
   d. Approved equal
3. Finish:
   a. Carboline: Carbothane 133/833 @ 3.0-5.0 mils d.f.t.
   b. Sherwin Williams Acrolon Multimil or 218 HS Series @ 3.0-5.0 mils d.f.t.
   c. Tnemec 73 Endura-Shield at 2-3 mils d.f.t. or
   d. Approved equal

C. Unless otherwise noted, provide manufacturer's baked-on, rust-inhibitive paint, for application to metal surfaces which have been chemically cleaned and phosphate chemical treated.

2.4 FABRICATION

A. General: Form deck units in lengths to span three or more supports with flush, telescoped or nested

2" laps at ends and interlocking or nested side laps, unless otherwise indicated. Where spanning at least 3 supports is not possible, provide a single span or 2-span condition with temporary deck shoring subject to review and approval by Commissioner.

B. Metal Floor Deck Units:

1. Open-Beam Composite Units: Fabricate deck units with integral embossing or raised pattern to furnish mechanical bond with concrete slabs. Fabricate open-beam deck units with fluted section having interlocking side laps of metal thickness, depth and width as shown.

C. The type, gage, and span direction of the metal deck shall be as shown on plans.

PART 3 — EXECUTION

3.1 INSTALLATION

A. General: Install deck units and accessories in accordance with manufacturer's recommendations and final shop drawings, and as specified herein.

1. Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.
2. Place deck units flat and square, secured to adjacent framing without warp or excessive deflection.
3. Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.
4. Do not use floor deck units for storage or working platforms until permanently secured.

B. Fastening Deck Units:

1. Unless otherwise notes, fasten floor deck units to steel supporting members by not less than 3/4"-diameter fusion welds or elongated welds of equal strength, spaced not more than 12" on center with a minimum of two welds per unit at each support. Tack weld or use self-tapping No. 10 or larger machine screws at 24" on center for fastening end closures, unless otherwise noted.
2. Fasten roof deck units to steel supporting members by not less than 1/2"-diameter fusion welds or elongated welds of equal strength, spaced not more than 12" on center at every support, and at closer spacing where required for lateral force resistance. In addition, secure deck to each supporting member in ribs where side laps occur.
3. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds and methods used in correcting welding work. Use welding washers where decking is thinner than 22 gage and as recommended by deck manufacturer.

4. Mechanically fasten side laps of adjacent deck units between supports at intervals not exceeding 24" on center using self-tapping No. 10 or larger machine screws or welding.
5. Keep the interiors of cells that will be used as raceways free of welds having sharp points or edges.

C. Cutting and Fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.

D. Reinforcement at Openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking and support of other work shown.

E. Hanger Slots:

1. Provide UL-approved punched hanger slots between cells or flutes of lower element where floor deck units are to receive hangers for support of ceiling construction, air ducts, diffusers or lighting fixtures.
2. Locate slots at not more than 14" on center in both directions, not more than 9" from walls at ends and not more than 12" from walls at sides, unless otherwise shown.
3. The maximum load supported by each hanger slot shall be 100 pounds.
4. Provide manufacturer's standard hanger attachment devices.

F. Joint Covers: Provide metal joint covers at abutting ends and changes in direction of floor deck units, except where taped joints are required.

G. Shear Connectors: Weld shear connectors to supports through decking units in accordance with manufacturer’s instructions. Do not weld shear connectors through two layers (lapped ends) of decking units. Weld only on clean, dry deck surfaces.

H. Touch-Up Painting: After decking installation, wire brush, clean and paint scarred areas, welds and rust spots on top and bottom surfaces of decking units and supporting steel members.

1. Touch up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
2. Touch up painted surfaces with same type of shop paint used on adjacent surfaces.
3. In areas where shop-painted surfaces will be exposed, apply touch-up paint to blend into adjacent surfaces.

I. Install deck to span a minimum of 3 supports. Where spanning deck over 3 supports is not possible, temporarily shore 2 span and single span deck conditions.

END OF SECTION 05 30 00

SECTION 07 52 00
ROOFING

PART I - GENERAL

1.1 RELATED DOCUMENT:

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 SECTION INCLUDES

A. Elastomeric roofing membrane, mechanically fastened conventional application.

B. Insulation, flat and tapered.

C. Flashings.

D. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

1.3 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

B. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers- Tension; 2006a (Reapproved 2013).

C. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2012).

D. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2013.

E. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).

F. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2013.

G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2013.

H. FM DS 1-28 - Wind Design; Factory Mutual Research Corporation; 2007.

I. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association; Fifth Edition, with interim updates.

J. UL (RMSD) - Roofing Materials and Systems Directory; Underwriters Laboratories Inc.; current edition.

1.4 SUBMITTALS

A. Product Data: Provide data indicating membrane materials, flashing materials, insulation, and fasteners.

B. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation, and paver layout.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

C. Installer Qualifications: SPECIAL NOTICE TO BIDDERS – SPECIAL EXPERIENCE

1. 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. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight.

1.7 FIELD CONDITIONS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature is below 40 degrees F (5 degrees C) or above 100 degrees F (38 degrees C).

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

PART II – PRODUCTS

2.1 MANUFACTURERS

A. Roofing:
1. Atlas Roofing Corporation
2. GAF
3. John Mannsville
4. Or approved equal.

2.2 INSULATION

A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 2 and with the following characteristics:
1. Compressive Strength: 20 psi (138 kPa)
2. Board Edges: Square.

2.3 ACCESSORIES

A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.

B. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.

C. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.

D. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.

E. Membrane Adhesive: As recommended by roofing manufacturer.

F. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

G. Thinners and Cleaners: As recommended by roofing manufacturer, compatible with membrane.

H. Sealants: As recommended by roofing manufacturer.

I. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.
   1. Composition: Roofing manufacturer's standard.
   2. Surface Color: As selected by Commissioner.

PART III- EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.2 INSULATION - UNDER MEMBRANE

A. Attachment of Insulation:
   1. Mechanically fasten first layer of insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.

B. Lay subsequent layers of insulation with joints staggered minimum 6 inch (150 mm) from joints of preceding layer.

C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

E. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches (450 mm).

F. Do not apply more insulation than can be covered with membrane in same day.

3.3 MEMBRANE APPLICATION

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches (75 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

D. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer's instructions.

E. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 4 inches (100 mm) onto vertical surfaces.
   2. Fully adhere flexible flashing over membrane and up to nailing strips.

F. Around roof penetrations, seal flanges and flashings with flexible flashing.

G. Install roofing expansion joints where indicated. Make joints watertight.
   1. Install prefabricated joint components in accordance with manufacturer's instructions.

H. Coordinate installation of roof drains and sumps and related flashings.

3.4 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or damaged finishes caused by work of this section.

3.5 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION 07 52 00

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SECTION 07 84 13
FIRESTOPS AND SMOKESEALS

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 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the firestops and smokeseals as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

4. Sealant joints in fire-resistance-rated construction.

5. Penetrations at each floor level in shafts and/or stairwells.

6. Construction joints, including those between top of fire rated walls and underside of floors above.

1.3 RELATED SECTIONS

A. Concrete restoration work – Section 03 37 33.

B. Piping penetrations - Division 22.

C. Duct penetrations - Division 23.

D. Cable and conduit penetrations - Division 26.

1.4 REFERENCES

A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."

B. UL 1479, UBC 7-5 (Both are same as A. above).

C. ASTM E 119 "Standard Method of Fire Tests of Building Construction and Materials."

D. UL 263, UBC 7-1 (Both are same as C. above).

E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."

F. ASTM E 1399 "Test For Dynamic Movement Conditions."

G. ASTM E 1966 (Same as E. above).

H. Published Through-Penetration Systems by recognized independent testing agencies.

1. UL Fire Resistance Directory, Volume II of current year.
2. Warnock Hersey Certification Listings, current year.
3. Omega Point Laboratories, current year.

I. Material must have approval for use in New York City.

1.5 SUBMITTALS

A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.

B. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, for proposed UL listed (or equal) firestop and smokeseal assembly required for the Project.

C. Material Safety Data Sheets: Submit MSDS for each firestop product.

D. Submit qualifications of firestop installer, including letter from firestop manufacturer of products proposed to be installed, wherein manufacturer approves or recognizes as trained installer for installation of that manufacturer's products.

E. Manufacturer's Letters: For installations or configurations not covered by a UL or Warnock Hersey design number, a recommendation shall be obtained from the manufacturer, in writing, for the specific application.

1.6 QUALITY ASSURANCE

A. General: Provide firestopping systems that are produced and installed to resist the spread of fire, and the passage of smoke and other gases.

B. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by NYC building code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F rating must be a minimum of one (1) hour but not less than the fire resistance rating of the assembly being penetrated. T rating, when required by NYC DOB shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.

C. Firestopping products shall be asbestos free and free of any PCBs.

D. Do not use any product containing solvents or that requires hazardous waste disposal.

E. Do not use firestop products which after curing, dissolve in water.

F. Do not use firestop products that contain ceramic fibers.

G. Firestopping Installer Qualifications: Firestop application shall be performed by a single firestopping contractor who specializes in the installation of firestop systems, whose personnel to be utilized have received specific training from the proposed respective firestop manufacturer, and firestop installer shall have a minimum of three years experience (under present company name) installing firestop systems of the type herein specified.

H. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

I. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture- resistant through-penetration firestop systems.

2. For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.

C. All firestop materials shall be installed prior to expiration of shelf life.

1.8 PROJECT CONDITIONS

A. Verify existing conditions and substrates before starting work

B. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.

C. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.

D. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.

E. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.

F. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.

G. Coordinate this work as required with work of other trades.

1.9 SEQUENCING AND SCHEDULING

A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

B. Sequence: Perform work of this and work by other trades in proper sequence to prevent damage to the firestop systems and to ensure that their installation will occur prior to enclosing or concealing work.

C. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.

D. Do not cover firestop systems until they have been properly inspected and accepted by the special inspector.

PART II – PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following manufacturers:

1. Tremco
2. Bio-Fireshield
3. 3M
4. Specified Technologies Inc.
5. U.S. Gypsum Co.
6. Nelson
7. Hilti, Inc.
8. Grace Flame Safe
9. Or approved equal

2.2 FIRESTOPPING, OR APPROVED EQUAL GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

    a. Semirefractory fiber (mineral wool) insulation.
    b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
    c. Fire-rated form board.
    d. Joint fillers for joint sealants.

2. Temporary forming materials.

3. Substrate primers.

4. Collars.

5. Steel sleeves.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

D. Smokeseals at top of partitions shall be flexible to allow for partition deflection.

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.

C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.

D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethelene foil on one side.

E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.

G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.

H. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

I. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

1. Sealant Colors: Color of exposed joint sealants as selected by the Commissioner.

B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure- related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.
   1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.

C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

   1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.

D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

A. Provide min. 4 pcf Thermafiber as manufactured by Thermafiber Co., min. 4 pcf FBX Safing Insulation as manufactured by Fibrex, 3M, Fiberfrax, or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.

B. Material shall be classified non-combustible per ASTM E 119.

2.6 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART III- EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer present, for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

A. Building Exterior Perimeters

1. Where exterior facing construction is continuous past a structural floor, and a space (i.e. construction joint) would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly.

   a. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL or Warnock Hersey listed firestop sealant or spray.
   b. Refer to Article 3.6 herein for description of fire safing insulation.

2. Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.

3. Where an exterior wall passes a perimeter structural member, such as a girder, beam, or spandrel, and the finish on the interior wall face does not continue up to close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and the structural member, provide firestopping to continuously fill such open space.

B. Interior Walls and Partitions

1. Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.

2. Firestop system installed shall have been tested by either UL or Omega Point, including exposure to hose stream test and including for use with steel fluted deck floor assemblies.

3. Firestop system used shall allow for deflection of floor above.

C. Penetrations

1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.

2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.

3. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.

D. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.

3.4 INSTALLING THROUGH PENETRATION FIRESTOPS

A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:

1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS

A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 INSTALLING FIRESAFING INSULATION

A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.

B. Completely fill voids in areas where safing insulation is required. At spandrel conditions/floor edges, depth of insulation top to bottom shall be at least four (4) inches.

C. Cover top of all safing insulation with firestop sealant or spray.

3.7 FIELD QUALITY CONTROL

A. Special inspector will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

3.8 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to product firestopping complying with specified requirements.

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SECTION 09 90 00

PAINTING AND COATING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the painting and finishing as shown on the drawings and/or specified herein, including, but not limited to, the following:

1. Prime painting unprimed surfaces to be painted under this Section.

2. Painting all items furnished with a prime coat of paint, including touching up of or repairing of abraded, damaged or rusted prime coats applied by others.

3. Painting all ferrous metal (except stainless steel) exposed to view.

4. Painting all galvanized ferrous metals exposed to view.

5. Painting interior concrete block exposed to view.

6. Painting gypsum drywall exposed to view.

7. Painting of wood exposed to view, except items which are specified to be painted or finished under other Sections of these specifications. Back painting of all wood in contact with concrete, masonry or other moisture areas.

8. Painting pipes, pipe coverings, conduit, ducts, insulation, hangers, supports and other mechanical and electrical items and equipment exposed to view.

9. Painting surfaces above, behind or below grilles, gratings, diffusers, louvers, lighting fixtures, and the like, which are exposed to view through these items.

10. Incidental painting and touching up as required to produce proper finish for painted surfaces, including touching up of factory finished items.

11. Painting of any surface not specifically mentioned to be painted herein or on drawings, but for which painting is obviously necessary to complete the job, or work which comes within the intent of these specifications, shall be included as though specified.

1.3 RELATED SECTIONS

A. Shop Coat on Machinery and Equipment: Refer to the Sections under which various items of manufactured equipment with factory applied shop prime coats are furnished, including, but not necessarily limited to, the following Sections. All items of equipment furnished with prime coat finish shall be finish painted under this Section.

1. Plumbing - Division 22.

2. Heating, Ventilation and Air Conditioning – Division 23.

3. Electrical – Division 26

B. Color Coding of Mechanical Piping and Electrical Conduits - Divisions 22 and 26.

1. This Color Coding consists of an adhesive tape system and is in addition to painting of piping and conduits under this Section, as specified above.

1.4 MATERIALS AND EQUIPMENT NOT TO BE PAINTED

A. Items of equipment furnished with complete factory finish, except for items specified to be give a finish coat under this Section.

B. Factory-finished toilet partitions.

C. Factory-finished acoustical tile.

D. Non-ferrous metals, except for items specified and/or indicated to be painted.

E. Finished hardware, excepting hardware that is factory primed.

F. Surfaces not to be painted shall be left completely free of droppings and accidentally applied materials resulting from the work of this Section.

1.5 QUALITY ASSURANCE

A. Job Mock-Up

1. In addition to the samples specified herein to be submitted for approval, apply in the field, at their final location, each type and color of approved paint materials, applied 10 feet wide, floor to ceiling of wall surfaces, before proceeding with the remainder of the work, for approval by the Commissioner. Paint mock-ups to include door and frame assembly.

2. These applications when approved will establish the quality and workmanship for the work of this Section.

3. Repaint individual areas which are not approved, as determined by the Commissioner, until approval is received. Assume at least two paint mock-ups of each color and gloss for approval.

B. Qualification of Painters: Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces.

C. Paint Coordination: Provide finish coats which are compatible with the prime paints used.

1. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other trades, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Commissioner in writing of any anticipated problems using the coating systems as specified with substrates primed by others.

D. All paints must conform to the Volatile Organic Compounds (VOC) and NYC Building Code requirements.

1.6 SUBMITTALS

A. Materials List

1. Before any paint materials are delivered to the job site, submit to the Commissioner a complete list of all materials proposed to be furnished and installed under this portion of the work.

2. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Commissioner.

B. Samples

1. Accompanying the materials list, submit to the Commissioner copies of the full range of colors available in each of the proposed products.

2. Upon direction of the Commissioner, prepare and deliver to the Commissioner two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material; whenever possible, the material for Samples shall be the same material as that on which the coating will be applied in the work.

C. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these specifications, submit for the Commissioner's review the current recommended method of application published by the manufacturer of the proposed material.

1.7 PRODUCT HANDLING

A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. Protection

1. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.

2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.

3. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

1.8 JOB CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds eighty-five (85) percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

D. Painting may be continued during inclement weather only if the areas and surfaces to be painted are enclosed and heated within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 PAINT MANUFACTURERS

A. As scheduled in Article 2.4.

2.2 MATERIALS

A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.

B. Colors and Glosses: All colors and glosses shall be as selected by the Commissioner. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Commissioner. Color schedule (with gloss) shall be furnished by the Commissioner.

C. Coloring Pigment: Products of or furnished by the manufacturer of the paint or enamel approved for the work.

D. Linseed Oil: Raw or boiled, as required, of approved manufacture, per ASTM D 234 and D 260, respectively.

E. Turpentine: Pure distilled gum spirits of turpentine, per ASTM D 13.

F. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.

G. Driers, Putty, Spackling Compound, Patching Plaster, etc.: Best quality, of approved manufacture.

H. Heat Resistant Paint: Where required, use heat resistant paint when applying paint to heating lines and equipment.

2.3 GENERAL STANDARDS

A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Commissioner reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the City of New York.

B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.

C. All painting materials shall bear identifying labels on the containers with the manufacturer's instructions printed thereon.

D. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency and shall have excellent application properties.

E. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.

F. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.

G. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Commissioner prior to application of the coating.

2.4 EXTERIOR HIGH-PERFORMANCE COATINGS

A. High Performance Coating On Exterior Galvanized Ferrous Metals

1. First Coat: Polyamidoamine Epoxy by Tnemec, International Protective, Carboline, Sherwin Williams or approved equal.

2. Second Coat: Aliphatic Acrylic Polyurethane by Tnemec, Carboline, Sherman Williams or approved equal.

B. High Performance Coating On Exterior Non-Galvanized Ferrous Metals

1. Prime Coat: Aromatic Urethane, Zinc-Rich by Tnemec, Carboline, Sherman Williams or approved equal.

2. Second Coat: Polyamide Epoxy by Tnemec, International, Carboline, Sherman Williams, or approved equal.

3. Protective Coatings: Tnemec, Carboline, Sherwin Williams, or approved equal.

4. Third Coat: Aliphatic Acrylic Polyurethane by Tnemec, Carboline, Sherman Williams or approved equal.

2.5 PIPING AND MECHANICAL EQUIPMENT EXPOSED TO VIEW

A. Paint all exposed piping, conduits, ductwork and mechanical and electrical equipment. Use heat resisting paint when applied to heating lines and equipment. The Contractor is cautioned not to paint or otherwise disturb moving parts in the mechanical systems. Mask or otherwise protect all parts as required to prevent damage.

B. Exposed Uncovered Ductwork, Piping, Hangers and Equipment: Latex Enamel Undercoater and one (1) coat Acrylic Latex Flat.

C. Exposed Covered Piping, Duct Work and Equipment: Primer/Sealer and one (1) coat Acrylic Latex Flat.

D. Panel Boards, Grilles and Exposed Surfaces of Electrical Equipment: Latex Enamel Undercoater and two (2) coats Latex Semi-gloss enamel.

E. Equipment or Apparatus with Factory-Applied Paint: Refinish any damaged surfaces to match original finish. Do not paint over name plates and labels.

F. All surfaces of insulation and all other work to be painted shall be wiped or washed clean before any painting is started.

G. All conduit, boxes, distribution boxes, light and power panels, hangers, clamps, etc., are included where painting is required.

H. All items of Mechanical and Electrical trades shall be carefully coordinated with the work of this Section as to leave no doubt as to what items are scheduled to be painted under this Section.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where painting and finishing are to be applied and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Commissioner in writing.

B. The Contractor shall furnish the Commissioner a schedule showing when the work is expected to be completed with the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.

C. The Contractor shall protect his work at all times, and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, remove all paint and varnish spots from floors, glass and other surfaces. Remove from the premises all rubbish and accumulated materials and leave the work in clean, orderly and acceptable condition.

D. Remove and protect hardware, accessories, device plates, lighting fixtures, and factory finished work, and similar items, or provide ample in place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.

E. Remove electrical panel box covers and doors before painting walls. Paint separately and re- install after all paint is dry.

F. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.

G. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the City of New York.

H. All coats shall be dry to manufacturer’s recommendations before applying succeeding coats.

I. Do not apply paint behind frameless mirrors that use mastic for adhering to wall surface.

3.3 PREPARATION OF SURFACES

A. General

1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.

2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.

3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.

B. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.

2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits. For aluminum surfaces, wipe down with an oil free solvent prior to application of any pre-treatment.

   a. Bare metal to receive high performance coating specified herein must be blast cleaned SSPC SP-6 prior to application if field applied primer; coordinate with steel trades furnishing ferrous metals to receive this coating to ensure that this cleaning method is followed.

3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal." Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.

4. Galvanized Metal: Prepare surface as per the requirements of ASTM D 6386.

5. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.

C. Gypsum Drywall Surfaces: Scrape off all projections and splatters, spackles all holes or depressions, including taped and spackled joints, sand smooth.

D. Wood Surfaces: Sand to remove all roughness, loose edges, slivers, or splinters and then brush to remove dust. Wash off grease or dirt with an approved cleaner. Fill all cracks, splits, nail holes, screw holes, and surface defects with putty after the priming coat has been applied. Putty shall be brought up flush with the surface and sanded smooth and touched-up with primer when dry.

E. Block Masonry Surfaces: Thoroughly clean off all grit, grease, dirt mortar drippings or splatters, and other foreign matter. Remove nibs or projections from masonry surfaces. Fill cracks, holes or voids, not filled under the Section, with Portland cement grout, and bag surface so that it has approximately the same texture as the adjacent masonry surface.

F. Testing for Moisture Content: Contractor shall test all masonry and drywall surfaces for moisture content using a reliable electronic moisture meter. Contractor shall also test latex type fillers for moisture content before application of top coats of paint. Do not apply any paint or sealer to any surface or to latex type filler where the moisture content exceeds seven (7) percent as measured by the electronic moisture meter.

G. Touch-Up: Prime paint all patched portions in addition to all other specified coats.

3.4 MATERIALS PREPARATION

A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.

D. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are to be applied. Tint undercoats to match the color of the finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.5 APPLICATION

A. General

1. Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.

2. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.

3. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to ensure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.

4. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.

   a. "Exposed surfaces" is defined as those areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, etc., are in place in areas scheduled to be painted.

5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non- specular black paint, before final installation of equipment.

6. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.

7. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.

8. Enamel finish applied to wood or metal shall be sanded with fine sandpaper and then cleaned between coats to produce an even surface.

9. Paste wood filler applied on open grained wood after beginning to flatten, shall be wiped across the grain of the wood, then with a circular motion, to secure a smooth, filled, clean surface with filler remaining in open grain only. After overnight dry, sand surface with the grain until smooth before applying specified coat.

B. Scheduling Painting

1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

E. Touching-Up of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To touch up, the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Commissioner.

B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEAN UP

A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.

B. Upon completion of painting work, clean window glass and other paint spattered surfaces.

1. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

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SECTION 22 05 00
COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Work Included:

1. The system shall include but not limited to the following: Piping, insulation, fittings, valves.

B. This Section includes general administrative and procedural requirements for the plumbing installations. The administrative and procedural requirements included in this section expand the requirements specified in General Conditions.

1.3 CODES, PERMITS AND INSPECTIONS

A. All work shall meet or exceed the latest requirements of all 2014 New York City Building Code, New York City Fuel Gas Code, NYC Plumbing Code and the Commissioner over construction work at the project.

B. All required permits, approval and inspection certificates shall be obtained, paid for, and made available at the completion of the work, by the Contractor.

C. Installation procedures, methods, and conditions shall comply with the latest requirements of The Federal Occupational Safety and Health Act.

D. The Contractor shall be responsible for the installation and filing until the installation has been approved by the Commissioner.

E. All products and equipment shall be tested and/or listed and labeled by approved agency, such as Underwriters Laboratories (UL), according to prescribed standard or by approved agency according to New York City Office of Technical Certification and Research (OTCR) approved criteria.

1.4 GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from leaks and defects. Any defective materials or workmanship, as well as damage to the work resulting from same, shall be replaced or repaired by the contractor as directed for the duration of stipulated guaranteed periods.

B. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of plumbing equipment.

1.5 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

F. Piping: Pipe, fittings, flanges, valves, controls, hangers, drains, insulation, and items customarily required in connection with the transfer of fluids.

1.6 SUBMITTALS

A. Refer to DDC General Conditions, Section 013300 "Submittal Procedures".

1.7 MAINTENANCE DATA AND OPERATING INSTRUCTIONS

A. Maintenance and operating manuals in accordance with General Conditions, for systems and equipment.

B. After all final tests and adjustments have been completed, fully instruct the Commissioner in all details of operation for equipment installed. Supply qualified personnel to operate equipment for sufficient length of time to assure that the Commissioner and Theater for the New City are properly qualified to take over operation and maintenance procedures. Supply qualified personnel to operate equipment for sufficient length of time as required to meet all the Commissioner's operation and performance tests.

1.8 DELIVERY, STORAGE, HANDLING AND PROTECTION

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Unit shall be stored and handled in accordance with manufacturer's instructions.

C. Unit shall be shipped with all listed items and control wiring factory installed unless noted on the submittals and approved prior to shipment.

D. Unit shall be shipped complete as specified. Parts for field installation shall not be shipped and stored on site without prior approval.

E. Rigging: Units shall be fully assembled. Units requiring disassembly for rigging shall be factory assembled and tested. Disassembly, reassembly and testing shall be supervised by the manufacturer's representative.

F. Unit shall be shipped with firmly attached labels that indicate name of manufacturer, model number, serial number, date of manufacturer, capacity information and plan tagging.

G. Deliver, store and handle all materials to keep clean and protected from damage.

H. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

I. Protect flanges, fittings, and piping specialties from moisture and dirt.

J. Protect equipment and other materials from damage after installed from construction debris and other damage.

K. The Contractor shall be responsible for its work and equipment until finally inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material.

L. The Contractor shall protect work and material from damage that might be caused by its work or workmen and make good damage thus caused.

1.9 PRECONSTRUCTION CONFERENCE PRIOR TO START OF WORK

A. Prior to commencing any Work, the Contractor shall confer with the Commissioner concerning the Work.

B. The pre-construction conference will be conducted under the leadership of the Contractor. The pre-construction conference will focus on items such as the expedited submittal review procedure, interface and coordination between Contractor work scope, the Contractor's project site rules and requirements, temporary utility requirements, Contractor's construction schedule, etc.

1.10 SEQUENCING AND SCHEDULING

A. Coordinate plumbing equipment installation with other building components.

B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for plumbing installations.

C. Coordinate the installation of required supporting devices and set sleeves in poured in place concrete and other structural components as they are constructed.

D. Sequence, coordinate, and integrate installations of plumbing materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

E. Coordinate connection of electrical services prior to purchasing equipment.

F. Coordinate connection of plumbing systems with existing and new exterior underground and overhead utilities and services. Comply with requirements of Consolidated Edison Company of New York and the Commissioner.

G. Coordinate requirements for access panels and doors where plumbing items requiring access are concealed behind finished surfaces.

H. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

1.11 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

1.12 COORDINATION DRAWINGS

A. Prepare coordination drawings in accordance with the DDC General Conditions, to a scale of 3/8"=1'-0" or larger; detailing major elements, components, and systems of plumbing equipment and materials in relationship with other systems, installations, and building components. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to the efficient flow of the Work:

1. Indicate the proposed locations of piping, equipment, and materials. Include the following:

    a. Planned piping layout, including valve and specialty locations and valve stem movement.

B. Plumbing Coordination Drawings

1. The contractor shall add to Coordination Drawings prepared by the Contractor showing all of the plumbing work (equipment, piping, etc.) to be installed as part of the work of this section of the specifications.

2. The sequence of coordination drawings shall be HVAC-PLBG-FP-ELEC.

3. The Contractor shall attend all meetings to resolve any real or apparent interferences or conflicts with the work.

4. The Contractor shall then make adjustments to his work on the Coordination Drawings to resolve any real or apparent interferences or conflicts.

5. After any real or apparent interferences and conflicts have been incorporated into the Coordination Drawings, the Contractor shall "sign-off" the final Coordination Drawings.

6. The Contractor shall not install any of his work prior to "sign-off" of final Coordination Drawings. If the plumbing work proceeds prior to sign-off of Coordination Drawings, any change to the plumbing work to correct the interferences and conflicts which result will be made by the Contractor at no additional cost to the City of New York.

7. Coordination Drawings are for the Commissioner use during construction and shall not be construed as replacing any shop "as-built", or Record Drawings required elsewhere in these Contract Documents.

8. The Commissioner review of Coordination Drawings shall not relieve Contractor from the overall responsibility for coordination of all work performed pursuant to the Contract or from any other requirements of the Contract.

1.13 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

Reference	Definition
ASTM	American Society for Testing Materials
ASPE	American Society of Plumbing Engineers
NFPA	National Fire Protection Association
UL	Underwriters Laboratories, Inc.
NEMA	National Electrical Manufacturers Assn.
USAS	United States of America Standards Institute
ANSI	American National Standards Institute
AWWA	American Water Works Association
I.S.O.	Insurance Services Organization
C.S.	Commercial Standards issued by the United States Department of Commerce.
M.S.S.	Manufacturers Standardization Society of the Valve and Fittings Industry
A.G.A.	American Gas Association, Inc.
A.S.H.R.A.E.	American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

Reference	Definition
P.D.I.	Plumbing and Drainage Institute
N.S.F.	National Sanitation Foundation
A.S.S.E.	American Society of Sanitary Engineering
I.A.P.M.O.	International Association of Plumbing and Mechanical Officials
DEP	Department of Environmental Protection

1.14 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. Before beginning work, thoroughly examine the site and the Contract Documents.

B. No claim for extra compensation will be recognized if difficulties are encountered which examination of site conditions and Contract Documents prior to executing Contract would have revealed.

1.15 CONTINUITY OF SERVICES

A. Do not interrupt existing services without the Commissioner approval.

B. Schedule interruptions in advance, according to the Commissioner instructions. Submit, in writing, with request for interruption, methods proposed to minimize impact on Theater for the New City operations. Interruptions shall also be coordinated with the FDNY.

C. Interruptions shall be scheduled at such times of day and work to minimize impact on Theater for the New City operations.

1.16 QUALITY ASSURANCE:

A. Products Criteria

1. All equipment furnished as part of the work shall comply with the latest editions of all applicable state and municipal energy codes. Provide certification from the equipment suppliers for all energy-consuming equipment that the equipment fully complies with these codes. Equipment submissions will not be accepted for review unless accompanied by such certification in writing.

2. All equipment and materials shall be new and without blemish or defect.

3. New equipment and materials shall be Underwriters Laboratories, Inc. (U.L.) labeled and/or listed where specifically called for or where normally subject to such U.L. labeling and/or listing services.

4. Asbestos

   a. All equipment and materials shall be free of asbestos.

5. Note that the approval of shop drawings, or other information submitted in accordance with the requirements hereinbefore specified, does not assure that the Commissioner attests to the dimensional accuracy or dimensional suitability of the material or equipment involved or the ability of the material or equipment involved or the mechanical performance of equipment.

6. Substitutions of equipment for that shown on the schedules or designated by model number in the specifications will not be considered if the item is not a regular cataloged item shown in the current catalog of the manufacturer.

7. Prohibition of Lead

   a. The presence and use of lead is strictly prohibited in potable water systems.

   b. Potable water shall not be subject to contact with lead in any form.

   c. The design and manufacture of all materials and equipment (piping, fittings, joints, connections, solders, fixtures, accessories, etc.) provided, shall not contain lead in any form.

   d. Contractor shall be responsible for all costs involved in testing and certifying that potable water systems, materials and equipment are lead free.

PART 2 – PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Sections of this Division specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes, free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Install piping to allow application of insulation.

I. Select system components with pressure rating equal to or greater than system operating pressure.

J. Sleeves are not required for core-drilled holes.

K. Permanent sleeves are not required for holes formed by removable PE sleeves.

L. Install sleeves for pipes passing through poured concrete and masonry walls, gypsum-board partitions, and poured concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.

3. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel or Pipe Sleeves: For pipes smaller than 6 inch (150 mm).

b. Steel Sheet Sleeves: For pipes 6 inch (150 mm) and larger, penetrating gypsum-board partitions.

c. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level.

(i) Seal space outside of sleeve fittings with grout.

4. Seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint.

M. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

N. Verify final equipment locations for roughing-in.

O. No installation shall be permitted which blocks or otherwise impedes access to any existing machine or system. Except as otherwise indicated, emergency switches and alarms shall be installed in conspicuous locations. All indicators, to include gauges, meters, and alarms shall be mounted in order to be easily visible by people in the area.

3.2 PAINTING

A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

B. Provide prime coat painting for the following if not provided with factory applied corrosion protection.

1. Miscellaneous steel and iron provided by the Contractor.

2. Iron provided by the Contractor.

3.3 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with General Conditions:

1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

B. Perform cutting, fitting, and patching of mechanical equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work.

2. Remove and replace defective Work.

3. Remove and replace Work not conforming to requirements of the Contract Documents.

4. Remove samples of installed Work as specified for testing.

5. Install equipment and materials in existing structures.

6. Upon written instructions from the Commissioner, uncover and restore Work to provide for Commissioner observation of concealed Work.

C. Cut, remove and legally dispose of selected mechanical equipment, components, and materials as indicated, including but not limited to removal of mechanical piping, heating units, plumbing fixtures and trim, and other mechanical items made obsolete by the new Work.

D. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

E. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

F. Patch existing finished surfaces and building components using new materials matching existing materials and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

G. Patch finished surfaces and building components using new materials specified for the original installation and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

3.4 TESTS

A. Provide all designating signs for shutoff valves, control valves, alarms, and the like, as required by the Commissioner.

B. Testing of Systems

1. Perform all required tests in the manner prescribed by and to the satisfaction of the City of New York building department and New York City plumbing inspector, and the Commissioner. Commissioner shall be present to inspect tests.

2. Provide and pay for all devices, materials, supplies, labor and power required in connection with all tests. All tests shall be made in the presence and to the satisfaction of the Commissioner and New York City Plumbing Inspectors.

3. Defects disclosed by the tests shall be repaired, or if required by the Commissioner, defective work shall be replaced with new work without extra charge to the City of New York. Tests shall be repeated as directed, until all work is proven satisfactory.

4. The Contractor shall also be responsible for the work that may be damaged or disturbed by the tests, or the repair or replacement of the work, and shall, without extra charge to the City of New York, restore to its original condition.

3.5 PLUMBING DEMOLITION

A. Comply with requirements of General Conditions.

B. Provide all required labor, materials, equipment and perform all operations for complete demolition, removal and relocation of the existing work as indicated on the drawings and/or as specified or described.

C. Disconnect, demolish, and remove plumbing systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same piping material.

2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same piping material. Remove hangers that supported removed piping.

D. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

E. All removed equipment and material shall be removed from the project site.

F. Unless otherwise specifically specified, include all cutting and patching of existing floors, walls, partitions and other materials in the existing building. The Contractor shall restore these areas to original conditions.

G. Provide alteration work as shown on drawings or described herein.

3.6 PROTECTION AND CLEANING

A. Cleaning of Piping System

1. During construction, properly cap, plug and cover all openings in pipe, lines and equipment nozzles so as to prevent the entrance of sand, dirt, and foreign matter. Each system of piping shall be flushed (for the purpose of removing grit, dirt, sand, and foreign matter from the piping), for as long a time as is required to thoroughly clean the systems.

B. Adjusting

1. After the entire installation has been completed, make all required adjustments to balancing valves, air vents, automatic controls, circulators, flush valves, faucets, pressure reducing valves, etc., until all performance requirements are met. All water circulating systems shall be properly balanced.

C. All bearings of all equipment shall be oiled or greased as recommended by the manufacturer, after installation.

D. The alignment of each centrifugal pump shall be checked and each pump shall be properly aligned after the pumps are placed in service. Mechanical seals and shaft sleeves shall be replaced by the Contractor without charge in the event that unusual wear or faulty operation occurs during the guarantee period.

E. Cleaning

1. Upon completion of the work, all fixtures, trimmings and equipment shall be thoroughly cleaned, polished and left in first class condition for final acceptance.

3.7 EXISTING CONDITIONS AND CONTRACT DOCUMENTS

A. All Existing Conditions cannot be completely detailed on the drawings. These include, but are not limited to piping fixtures, equipment, lighting, supports etc. Removal and relocation of certain existing work will be necessary for the performance of the general work. The Contractor shall carefully examine all trades drawings, specifications and DDC general conditions. Contractor shall make all necessary adjustments at no additional cost to City of New York and provide entire scope indicated on Contract Documents.

B. The Contractor to investigate each space through which equipment must be moved. Where necessary, equipment shall be shipped from manufacturer in sections of size suitable for moving through restrictive spaces available. Ascertain at what time of day equipment may be moved through certain restrictive areas.

C. The Contractor to become thoroughly familiar with all conditions under which work will be installed, as he will be held responsible for any assumptions, any omissions or errors made as a result of failure to become familiar with Existing Conditions and Contract Documents.

D. Install work so as to be readily accessible for operation, maintenance and repair. Minor deviations from drawings may be made to accomplish this, but changes which involve extra cost shall not be made without approval.

3.8 CONNECTIONS TO EXISTING WORK (AND ALTERATIONS)

A. Plan installation of new work and connections to existing work to ensure minimum interference with regular operation of existing facilities. Submit to the Commissioner for approval, date schedule of necessary temporary shut-downs of existing services. All shutdowns shall be made at such times as will not interfere with regular operation of existing facilities and only after written approval of the Commissioner. To ensure continuous operation, make necessary temporary connections between new and existing work. All costs resulting from temporary shut-downs shall be borne by the Contractor.

B. Connect new work to existing work in neat and approved manner. Restore existing work disturbed to original condition.

C. Coordinate all connections to existing work with the Commissioner. Contractor shall field verify exact location of all existing services.

D. Alteration

1. Provide alteration work for work as shown on drawings or described herein.

2. See Architectural Drawings for identification of equipment and fixtures that will be removed.

3. All piping from existing equipment and fixtures that will be removed shall be capped or plugged back at stacks, inside hung ceilings, inside walls or slabs or below slabs on grade.

4. In no case on sanitary piping shall dead end longer than two feet remain.

5. Existing exposed piping not to be reused, and not specifically noted or shown on drawing to be abandoned shall be completely removed.

6. Concealed abandoned piping need not be removed, if it does not interfere in any way with the new work.

7. The existing systems shall be left in perfect working order upon completion of all new work.

8. Removed existing piping, fixtures, etc., shall not be reused unless otherwise indicated.

9. All existing exposed, unnecessary piping related to work being removed shall be completely removed.

10. Any expense required for shutdowns performed by the Con Edison Company of NY shall be paid for by the Contractor.

END OF SECTION 22 05 00

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SECTION 22 05 17
SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Sleeves.
2. Stack-sleeve fittings.
3. Sleeve-seal systems.
4. Sleeve-seal fittings.
5. Grout.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

D. Galvanized-Steel-Sheet Sleeves: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.

2.2 STACK-SLEEVE FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Zurn Specification Drainage Operation; Zurn Plumbing Products Group.

2. Metraflex.

3. Mifab.

4. Or approved equal.

B. Description: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring, bolts, and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with setscrews.

2.3 SLEEVE-SEAL SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.

2. CALPICO, Inc.

3. Metraflex Company (The).

4. Pipeline Seal and Insulator, Inc.

5. Link-Seal.

6. Or approved equal.

B. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.

1. Sealing Elements: EPDM-rubber NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

2. Pressure Plates: Carbon steel Stainless steel.

3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, Stainless steel of length required to secure pressure plates to sealing elements.

2.4 SLEEVE-SEAL FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Link seal.
2. Flexicraft.
3. Metraflex.
4. Presealed Systems.
5. Or approved equal.

B. Description: Manufactured plastic, sleeve-type, waterstop assembly made for imbedding in concrete slab or wall. Unit has plastic or rubber waterstop collar with center opening to match piping OD.

2.5 GROUT

A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch (25-mm) annular clear space between piping and concrete slabs and walls.

1. Sleeves are not required for core-drilled holes.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.

1. Permanent sleeves are not required for holes in slabs formed by molded-PE or -PP sleeves.
2. Cut sleeves to length for mounting flush with both surfaces.
    a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level.

3. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.

D. Install sleeves for pipes passing through interior partitions.

1. Cut sleeves to length for mounting flush with both surfaces.

2. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation.

3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants.

E. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 07 84 13 "Firestops and Smokeseals".

F. Sleeves are not required for core-drilled holes.

G. Permanent sleeves are not required for holes formed by removable PE sleeves.

H. Install sleeves for pipes passing through poured concrete and masonry walls, gypsum-board partitions, and poured concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.

3. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel or Pipe Sleeves: For pipes smaller than NPS 6 (DN 150).

b. Steel Sheet Sleeves: For pipes NPS 6 (DN 150) and larger, penetrating gypsum-board partitions.

c. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level.

1) Seal space outside of sleeve fittings with grout.

4. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint.

I. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches (150 mm) in diameter.

2. Install cast-iron "wall pipes" for sleeves 6 inches (150 mm) and larger in diameter.

3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.2 STACK-SLEEVE-FITTING INSTALLATION

A. Install stack-sleeve fittings in slabs.

1. Install fittings that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation.

2. Secure flashing between clamping flanges for pipes penetrating floors with membrane waterproofing. Comply with requirements for flashing.

3. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level.

4. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

5. Using grout, seal the space around outside of stack-sleeve fittings.

B. Fire-Barrier Penetrations: Maintain indicated fire rating of floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping in Section 07 84 13 "Firestops and Smokeseals".

3.3 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and at service piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.4 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in walls and slabs.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

3.5 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. Use sleeves and sleeve seals for the following piping-penetration applications:

1. Exterior Concrete Walls above Grade:

a. Piping Smaller Than NPS 6 (DN 150): Cast-iron wall sleeves Galvanized-steel wall sleeves Galvanized-steel-pipe sleeves Sleeve-seal fittings.

b. Piping NPS 6 (DN 150) and Larger: Cast-iron wall sleeves Galvanized-steel wall sleeves Galvanized-steel-pipe sleeves.

2. Concrete Slabs above Grade:

a. Piping Smaller Than NPS 6 (DN 150): Galvanized-steel-pipe sleeves PVC-pipe sleeves Stack-sleeve fittings Sleeve-seal fittings Molded-PE or -PP sleeves Molded-PVC sleeves.

b. Piping NPS 6 (DN 150) and Larger: Galvanized-steel-pipe sleeves Stack-sleeve fittings.

3. Interior Partitions:

a. Piping Smaller Than NPS 6 (DN 150): Galvanized-steel-pipe sleeves.

b. Piping NPS 6 (DN 150) and Larger: Galvanized-steel-sheet sleeves.

END OF SECTION 22 05 17

SECTION 22 05 18
ESCUTCHEONS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Escutcheons.

2. Floor plates.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated and rough-brass finish and setscrew fastener.

B. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

C. Split-Casting Brass Type: With polished, chrome-plated and rough-brass finish and with concealed hinge and setscrew.

D. Split-Plate, Stamped-Steel Type: With chrome-plated finish, concealed and exposed-rivet hinge, and spring-clip fasteners.

2.2 FLOOR PLATES

A. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

B. Split-Casting Floor Plates: Cast brass with concealed hinge.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of insulated piping and with OD that completely covers opening.

1. Escutcheons for New Piping:

a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.

b. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass or split-casting brass type with polished, chrome-plated finish.

c. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass or split-casting brass type with polished, chrome-plated finish.

d. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass or split-casting brass type with polished, chrome-plated rough-brass finish.

e. Bare Piping in Equipment Rooms: One-piece, cast-brass or split-casting brass type with polished, chrome-plated rough-brass finish.

2. Escutcheons for Existing Piping:

a. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-casting brass type with polished, chrome-plated finish.

b. Bare Piping at Ceiling Penetrations in Finished Spaces: Split-casting brass type with polished, chrome-plated finish.

c. Bare Piping in Unfinished Service Spaces: Split-casting brass type with polished, chrome-plated rough-brass finish.

d. Bare Piping in Equipment Rooms: Split-casting brass type with polished, chrome-plated rough-brass finish.

C. Install floor plates for piping penetrations of equipment-room floors.

D. Install floor plates with ID to closely fit around pipe, and with OD that completely covers opening.

1. New Piping: One-piece, floor-plate type.

2. Existing Piping: Split-casting, floor-plate type.

E. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.

b. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.

c. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece or split-casting, cast-brass type with polished chrome-plated finish.

d. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with polished chrome-plated finish.

e. Bare Piping in Equipment Rooms: One-piece, cast-brass type.

f. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type.

2. Existing Piping: Use the following:

a. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-casting, cast-brass type with chrome-plated finish.

b. Bare Piping at Ceiling Penetrations in Finished Spaces: Split-casting, cast-brass type with chrome-plated finish.

c. Bare Piping in Unfinished Service Spaces: Split-casting, cast-brass type with polished chrome-plated finish.

d. Bare Piping in Equipment Rooms: Split-casting, cast-brass type.

e. Bare Piping at Floor Penetrations in Equipment Rooms: Split-casting, floor-plate type.

3.2 FIELD QUALITY CONTROL

A. Replace broken and damaged escutcheons and floor plates using new materials.

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SECTION 22 05 29
HANGERS, SUPPORTS AND MISCELLANEOUS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Metal pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal-hanger shield inserts.
5. Fastener systems.
6. Pipe stands.

B. Related Sections:

1. Section 05 12 00 "Structural Steel" for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

1.4 PERFORMANCE REQUIREMENTS

A. Engineer Services: Engineer trapeze pipe hangers and equipment supports, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Hangers and supports for plumbing piping shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

1. Engineer supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

2. Engineer equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

3. Engineer seismic-restraint hangers and supports for piping and equipment and obtain approval from the Commissioner.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following; include Product Data for components:

1. Trapeze pipe hangers.

2. Metal framing systems.

3. Pipe stands.

C. Welding certificates: Copy of certificates for welding procedures and operators.

1.6 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.7 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. Engineering Responsibility: Design and preparation of Shop Drawings and calculations for each multiple pipe support and trapeze by a qualified professional engineer licensed in the State of New York.

1. Professional Engineer Qualifications: A professional engineer who is legally qualified 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 hangers and supports that are similar to those indicated for this Project in material, design, and extent.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

1. Pipe Hangers:
    a. Anvil International
    b. Cooper B-Line
    c. Carpenter & Paterson, Inc.
    d. National Pipe Hanger Corp.
    e. Or approved equal.
2. Metal Framing System:
    a. Anvil International
    b. Cooper B-Line
    c. Unistrut Corp.
    d. Allied Tube and Conduit
    e. Nibco Inc.
    f. Or approved equal.
3. Thermal-Hanger Shield Inserts:
    a. Carpenter & Paterson, Inc.
    b. National Pipe Hanger Corp.
    c. PHD Manufacturing Inc.
    d. Or approved equal.
4. Powder-Actuated Fastener Systems:
    a. Hilti, Inc.
    b. ITW Ramset/Red Head.

c. Tomarco.

d. Simpson Strong.

e. Or approved equal.

2.2 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.

2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.

3. Nonmetallic Coatings: Plastic coating, jacket, or liner.

4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.

5. Hanger Rods: Continuous-thread rod, nuts, and washer made of galvanized steel.

B. Stainless-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.

2. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.

3. Hanger Rods: Continuous-thread rod, nuts, and washer made of galvanized steel.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop-fabricated pipe-support assembly made from structural carbon-steel shapes with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

A. MFMA Manufacturer Metal Framing Systems:

1. Description: Shop-fabricated pipe-support assembly for supporting multiple parallel pipes.

2. Standard: MFMA-4.

3. Channels: Continuous slotted steel channel with inturned lips.

4. Channel Nuts: Formed or stamped steel nuts or other devices designed to fit into channel slot and, when tightened, prevent slipping along channel.

5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel stainless steel.

6. Metallic Coating: Electroplated zinc Hot-dipped galvanized Mill galvanized In-line, hot galvanized Mechanically-deposited zinc.

7. Paint Coating: Vinyl alkyd Epoxy Polyester Acrylic Amine Alkyd.

8. Plastic Coating: PVC Polyurethane Epoxy Polyester.

9. Combination Coating: Per manufacturer recommendations.

B. Non-MFMA Manufacturer Metal Framing Systems:

1. Description: Shop-fabricated pipe-support assembly made of steel channels, accessories, fittings, and other components for supporting multiple parallel pipes.

2. Standard: Comply with MFMA-4.

3. Channels: Continuous slotted steel channel with inturned lips.

4. Channel Nuts: Formed or stamped steel nuts or other devices designed to fit into channel slot and, when tightened, prevent slipping along channel.

5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel stainless steel.

6. Coating: Zinc Paint PVC.

2.5 THERMAL-HANGER SHIELD INSERTS

A. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

B. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

C. Insert Length: Extend 2 inches (50 mm) beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated stainless steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.7 PIPE STANDS

A. General Requirements for Pipe Stands: Shop-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.

B. Compact Pipe Stand: One-piece plastic unit with integral-rod roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.

C. Low-Type, Single-Pipe Stand: One-piece plastic, stainless-steel base unit with plastic roller, for roof installation without membrane penetration.

D. High-Type, Single-Pipe Stand:

1. Description: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration.

2. Base: Plastic, Stainless steel.

3. Vertical Members: Two or more cadmium-plated-steel or stainless-steel, continuous-thread rods.

4. Horizontal Member: Cadmium-plated-steel or stainless-steel rod with plastic or stainless-steel, roller-type pipe support.

E. Curb-Mounting-Type Pipe Stands: Shop-fabricated pipe supports made from structural-steel shapes, continuous-thread rods, and rollers, for mounting on permanent stationary roof curb.

2.8 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.

2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.

2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping, and support together on field-assembled metal framing systems.

D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

E. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches (100 mm) thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.

2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

F. Pipe Stand Installation:

1. Pipe Stand Types except Curb-Mounted Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.

2. Curb-Mounted-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb.

G. Pipe Positioning-System Installation: Install support devices to make rigid supply and waste piping connections to each plumbing fixture.

H. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

I. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

J. Install lateral bracing with pipe hangers and supports to prevent swaying.

K. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 (DN 65) and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

L. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

M. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

3.2 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.3 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches (40 mm).

3.4 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils (0.05 mm).

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.5 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems.

B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports metal trapeze pipe hangers and metal framing systems and attachments for general service applications.

F. Use stainless-steel pipe hangers or corrosion-resistant attachments for hostile environment applications.

G. Use padded hangers for piping that is subject to scratching.

H. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30 (DN 15 to DN 750).

2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F (566 deg C), pipes NPS 4 to NPS 24 (DN 100 to DN 600), requiring up to 4 inches (100 mm) of insulation.

3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36 (DN 20 to DN 900), requiring clamp flexibility and up to 4 inches (100 mm) of insulation.

4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 (DN 15 to DN 600) if little or no insulation is required.

5. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4 (DN 15 to DN 100), to allow off-center closure for hanger installation before pipe erection.

6. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8 (DN 20 to DN 200).

7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8 (DN 15 to DN 200).

8. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8 (DN 15 to DN 200).

9. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8 (DN 15 to DN 200).

10. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8 (DN 10 to DN 200).

11. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3 (DN 10 to DN 80).

12. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30 (DN 15 to DN 750).

13. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36 (DN 100 to DN 900), with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.

14. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36 (DN 100 to DN 900), with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.

15. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 to NPS 36 (DN 65 to DN 900) if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.

16. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30 (DN 25 to DN 750), from two rods if longitudinal movement caused by expansion and contraction might occur.

17. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes NPS 2-1/2 to NPS 24 (DN 65 to DN 600), from single rod if horizontal movement caused by expansion and contraction might occur.

18. Complete Pipe Rolls (MSS Type 44): For support of pipes NPS 2 to NPS 42 (DN 50 to DN 1050) if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.

19. Pipe Roll and Plate Units (MSS Type 45): For support of pipes NPS 2 to NPS 24 (DN 50 to DN 600) if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.

20. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes NPS 2 to NPS 30 (DN 50 to DN 750) if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.

I. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24 (DN 24 to DN 600).

2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 (DN 20 to DN 600) if longer ends are required for riser clamps.

J. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches (150 mm) for heavy loads.

2. Steel Clevises (MSS Type 14): For 120 to 450 deg F (49 to 232 deg C) piping installations.

3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.

4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.

5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F (49 to 232 deg C) piping installations.

K. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.

2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.

3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.

4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.

5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.

6. C-Clamps (MSS Type 23): For structural shapes.

7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.

8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.

9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.

10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.

11. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.

12. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:

a. Light (MSS Type 31): 750 lb (340 kg).

b. Medium (MSS Type 32): 1500 lb (680 kg).

c. Heavy (MSS Type 33): 3000 lb (1360 kg).

13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.

14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.

15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

L. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.

2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches (32 mm).

3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41, roll hanger with springs.

4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.

5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.

6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.

7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from trapeze support.

8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:

a. Horizontal (MSS Type 54): Mounted horizontally.

b. Vertical (MSS Type 55): Mounted vertically.

c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.

M. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

N. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

O. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

P. Use pipe positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

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SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Warning signs and labels.
2. Pipe labels.
3. Stencils.
4. Valve tags.
5. Warning tags.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

D. Valve numbering scheme.

E. Valve Schedules: For each piping system to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. ASME Compliance: Comply with ASME A13.1, "Scheme for the Identification of Piping Systems," for letter size, length of color field, colors, and viewing angles of identification devices for piping.

1.5 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 WARNING SIGNS AND LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch (3.2 mm) thick, and having predrilled holes for attachment hardware.

B. Letter Color: Black.

C. Background Color: Yellow.

D. Maximum Temperature: Able to withstand temperatures up to 160 deg F (71 deg C).

E. Minimum Label Size: Length and width vary for required label content, but not less than 3 by 5 1/4 inch (75 by 133 mm).

F. Minimum Letter Size: 1/4 inch (6.4 mm) for name of units if viewing distance is less than 24 inches (600 mm), 1/2 inch (13 mm) for viewing distances up to 72 inches (1830 mm), and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

G. Fasteners: Brass grommet and wire.

H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

I. Label Content: Include caution and warning information, plus emergency notification instructions. Include large size primary caption such as DANGER, CAUTION, or DO NOT OPERATE.

2.2 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.

2. Lettering Size: At least 1-1/2 inches (38 mm)high.

E. Plastic Tape: Continuously printed, vinyl tape at least 3 mils (0.08 mm) thick with pressure-sensitive, permanent-type, self-adhesive back.

1. Width for Markers on Pipes with OD, Including Insulation, Less Than 6 inches (150 mm) : 3/4 inch (19 mm) minimum.

2. Width for Markers on Pipes with OD, Including Insulation, 6 Inches (150 mm) or Larger: 1-1/2 inches (38 mm) minimum.

F. Colors: Comply with ASME A13.1, unless otherwise indicated.

2.3 STENCILS

A. Stencils: Prepared with letter sizes according to ASME A13.1 for piping; and minimum letter height of 3/4 inch (19 mm) for access panel and door labels, equipment labels, and similar operational instructions.

1. Stencil Material: Fiberboard or metal

2. Stencil Paint: Exterior, gloss, acrylic enamel black unless otherwise indicated. Paint may be in pressurized spray-can form.

3. Identification Paint: Exterior, acrylic enamel in colors according to ASME A13.1 unless otherwise indicated.

2.4 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch (6.4-mm) letters for piping system abbreviation and 1/2-inch (13-mm) numbers. Provide 5/32 inch (4 mm) hole for fastener.

1. Tag Material: Brass, 0.032-inch (0.8-mm) Stainless steel, 0.03752-inch (1mm) minimum thickness, and having predrilled or stamped holes for attachment hardware.

2. Fasteners: Brass wire-link or beaded chain; or S-hook.

B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch (A4) bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.

1. Valve-Schedule Frames: Glazed display frame for removable mounting on masonry walls for each page of valve schedule. Include mounting screws.

2. Frame: Finished hardwood or Extruded aluminum.

3. Glazing: ASTM C 1036, Type I, Class 1, Glazing Quality B, 2.5-mm, single-thickness glass.

2.5 WARNING TAGS

A. Warning Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.

1. Size: 3 by 5-1/4 inches (75 by 133 mm) minimum.

2. Fasteners: Reinforced grommet and wire or string.

3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."

4. Color: Yellow background with black lettering.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 PIPING IDENTIFICATION

A. Install manufactured pipe markers indicating service on each piping system. Install with flow indication arrows showing direction of flow.

1. Pipes with OD, Including Insulation, Less Than 6 inches (150 mm): Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, at least 3/4 inch (19 mm) 1-1/2 inches (38 mm) wide, lapped at least 1-1/2 inches (38 mm) at both ends of pipe marker, and covering full circumference of pipe.

2. Pipes with OD, Including Insulation, 6 inches (150 mm) and Larger: Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, at least 1-1/2 inches (38 mm) wide, lapped at least 3 inches (75 mm) at both ends of pipe marker, and covering full circumference of pipe.

B. Stenciled Pipe Marker Option: Stenciled markers may be provided instead of manufactured pipe markers, at Installer's option. Install stenciled pipe markers complying with ASME A13.1 on each piping system.

1. Identification Paint: Use for contrasting background.

2. Stencil Paint: Use for pipe marking.

C. Locate pipe markers and color bands where piping is exposed in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations as follows:

1. Near each valve and control device.

2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.

3. Near penetrations through walls, floors, ceilings, and nonaccessible enclosures.

4. At access doors, manholes, and similar access points that permit view of concealed piping.

5. Near major equipment items and other points of origination and termination.

6. Spaced at maximum intervals of 50 feet (15 m) along each run. Reduce intervals to 25 feet (7.6 mm) in areas of congested piping and equipment.

7. On piping above removable acoustical ceilings. Omit intermediately spaced markers.

3.3 VALVE-TAG INSTALLATION

A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; plumbing fixture supply stops; shutoff valves; faucets; convenience and lawn-watering hose connections; and terminal devices and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.

B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following:

1. Valve-Tag Size and Shape:

a. Gas: 2 inches (50 mm), round.

2. Valve-Tag Color:

a. Gas: Natural.

3. Letter Color:

a. Gas: White.

3.4 VALVE-SCHEDULE INSTALLATION

A. Mount valve schedule on wall in accessible location in each major equipment room.

3.5 WARNING-TAG INSTALLATION

A. Write required message on, and attach warning tags to, equipment and other items where required.

3.6 ADJUSTING

A. Relocate mechanical identification materials and devices that have become visually blocked by the work from other trades.

3.7 CLEANING

A. Clean faces of mechanical identification devices and glass frames of valve schedules.

END OF SECTION 22 05 53

SECTION 22 08 00
COMMISSIONING OF PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the project: (1) the contract drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

1.2 SUMMARY

A. This section includes commissioning process requirements for Plumbing systems, assemblies, and equipment.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City of New York with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of the Contractor to provide a complete design or installing Sub-Contractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City of New York.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing Sub-Contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Service documentation is complete and transferred to City of New York.
4. Verify that the City of New York's operating personnel are adequately oriented.
5. Perform a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the City of New York, Contractor, Sub-Contractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the Contractor to comply with the Contract Documents.

1.4 DEFINITIONS

A. Refer to DDC General Conditions for definitions.

1.5 SUBMITTALS

A. Refer to DDC General Conditions for CxA's role.

B. Refer to DDC General Conditions for specific submittal requirements. In addition, provide the following:

1. Certificates of readiness
2. Certificates of completion of installation, prestart, and startup activities.
3. O&M manuals
4. Test reports

1.6 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: The Contractor will comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

1.7 COORDINATION

A. Refer to DDC General Conditions for requirements pertaining to coordination during the commissioning process.

PART II - PRODUCTS

2.1 TEST EQUIPMENT

A. The Contractor shall ensure that the equipment and system perform startup, initial checkout and functional performance testing as outlined in the DDC General Conditions. For example, the Contractor shall ultimately be responsible for all standard testing equipment for the plumbing systems and control systems in Division 22. A sufficient quantity of two-way radios shall be provided by the Contractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included and left on site, at no additional cost to the City of New York, except for stand-alone data logging equipment that may be used by the CxA.

C. 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. The Contractor shall ensure that the manufacturer provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Test equipment (and

software) shall become the property of the City of New York upon completion of the commissioning process.

D. If required and necessary, data logging equipment and software required for testing will be provided by the CxA, but shall not become the property of the City of New York.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to accuracy of 0.5˚F and a resolution of ±0.1˚F. Pressure sensors shall have an accuracy of ±2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.

PART III - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the Contractor, the CxA will prepare Pre-Functional Checklists for commissioned components, equipment, and systems.

B. Red-lined Drawings:

1. The Contractor will verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.
2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.
3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.
4. The Contractor will create the as-built drawings.

C. Operation and Service Data:

1. The Contractor shall cuase the Sub-Contractor to provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements.
3. The CxA will receive a copy of the final approved O&M literature from the Contractor once corrections have been made by the Sub-Contractor.

D. Testing, Demonstration and Instruction:

1. The Contractor will provide demonstration and instruction as required by the specifications.
2. A complete instruction plan and schedule must be submitted by the Contractor to the CxA four weeks (4) prior to any instruction.
3. An instruction agenda for each instruction session must be submitted to the CxA one (1) week prior the instructing session.

4. The CxA shall be notified at least 72 hours in advance of scheduled tests so that testing may be observed by the CxA. A copy of the test record shall be provided to the CxA and Commissioner.
5. Engage a Factory-authorized service representative to demonstrate to the City of New York service personnel to adjust, operate, and maintain specific equipment.
6. Instruct the City of New York service personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review data in O&M Manuals.

3.2 CONTRACTOR RESPONSIBILITIES FOR SUB-CONTRACTOR PERFORMANCE

A. The Contractor shall cause the Sub-Contractor to have the following instruction responsibilities in performing plumbing System work: The commissioning responsibilities are as follows (all references apply to commissioned equipment/systems only):

1. Perform commissioning tests at the direction of the CxA.
2. Attend construction phase controls coordination meetings.
3. Attend domestic water balancing review and coordination meetings.
4. Participate in Plumbing systems, assemblies, equipment, and component service orientation and inspection as directed by the CxA.
5. Provide information requested by the CxA for final commissioning documentation.
6. Include requirements for submittal data, operation and maintenance data, and instruction in each purchase order or sub-contract written.
7. Prepare preliminary schedule for Plumbing system, pipe and duct system testing, flushing and cleaning, equipment start-up, testing and balancing, testing, operation and maintenance manual submissions, orientations and inspections for the Commissioner. Distribute preliminary schedule to commissioning team members.
8. Update schedule as required throughout the construction period.
9. During the startup and initial checkout process, execute the related portions of the pre-functional checklists for all commissioned equipment.
10. Assist the CxA in all verification and functional performance tests.
11. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.
12. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA (45) days after submittal acceptance.
13. Coordinate with the CxA to provide (72) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.
14. Notify the CxA a minimum of (2) weeks in advance of the time for start of the balancing work. Attend the initial balancing meeting for review of the balancing procedures.
15. Participate in, and schedule vendors and required Sub-Contractors to participate in the instruction sessions.

16. Provide written notification to the CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.
    a. Plumbing equipment including backflow preventers, domestic water heaters, pumps, plumbing fixtures, and all other equipment furnished under Division 22.
    b. Gas piping, sanitary waste and vent piping, storm drainage piping, sump pumps and, sewage ejectors.
17. The Contractor shall ensure that the equipment suppliers document the performance of their equipment.
18. Provide a complete set of red-lined drawings to the CxA prior to the start of Functional Performance Testing.
19. The Contractor shall ensure that the Sub-Contractor performs Test, Adjust and Balance work:
    a. Attend initial commissioning coordination meeting scheduled by the CxA.
    b. Submit the site specific balancing plan to the CxA and Commissioner for review and acceptance.
    c. Attend the balancing review meeting scheduled by the CxA. Be prepared to discuss the procedures that shall be followed in balancing the Plumbing system.
    d. At the completion of the balancing work, and the submittal of the final balancing report, notify the Commissioner.
    e. Participate in verification of the balancing report, which will consist of repeating measurements contained in the balancing reports. Assist in diagnostic purposes when directed.
20. The Contractor shall ensure equipment Suppliers perform the following tasks:
    a. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City of New York, to keep warranties in force.
    b. Assist in equipment testing per agreements with respective Sub-Contractors.
    c. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.
21. Provide instruction for the City of New York service personnel using qualified personnel, as specified.
22. Refer to DDC General Conditions for additional responsibilities.

3.3 CxA's RESPONSIBILITIES

A. Refer to DDC General Conditions for CxA's Responsibilities.

3.4 TESTING PREPARATION

A. Certify in writing to the CxA that Plumbing systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Plumbing instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that balancing procedures have been completed and that testing, adjusting, and balancing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.5 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Plumbing testing shall include entire Plumbing installation. Testing shall include measuring capacities and effectiveness of operational and control functions.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The CxA along with the Contractor, the Sub-Contractor performing plumbing work and the Sub-Contractor performing balancing work shall prepare detailed testing plans, procedures, and checklists for Plumbing systems, subsystems, and equipment. The Contractor shall ensure the participation of the Sub-Contractors as required.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxA and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct that set points be altered when simulating conditions is not practical.

H. The CxA may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

I. If tests cannot be completed because of a deficiency outside the scope of the Plumbing system, document the deficiency and report it to the City of New York. After deficiencies are resolved, reschedule tests.

J. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.6 PLUMBING SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing and Acceptance requirements are specified in Division 22. Provide submittals, test data, inspector records, and certifications to the CxA.

B. Plumbing Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in Division 22. Assist the CxA with preparation of testing plans.

C. Pipe system cleaning, flushing, hydrostatic tests and chemical treatment: The Contractor shall ensure that the Sub-Contractor performing plumbing work shall prepare a pipe system cleaning, flushing, and hydrostatic testing plan. Provide cleaning, flushing, testing, and treating plan and final reports to the CxA.

D. Plumbing Distribution System Testing: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of domestic water distribution system.

E. Vibration and Sound Tests: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

F. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and subsystems. The systems shall be evaluated shall include, but not limited to:

1. Gas piping System

3.7 SEASONAL TESTING

A. Refer to DDC General Conditions for requirements pertaining to seasonal testing.

3.8 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements.

B. Refer to DDC General Conditions for requirements for the Contractor and CxA roles in the Operation and Maintenance Manual contribution, review and approval process.

3.9 INSTRUCTION OF SERVICE PERSONNEL

A. Refer to DDC General Conditions for requirements pertaining to instruction.

B. The Contractor shall cause the plumbing Sub-Contractor to have the following instruction responsibilities:

1. Provide the CxA with an instruction plan two weeks before the planned instruction.
2. Provide the City of New York service personnel with comprehensive orientation and instruction in the understanding of the systems and the operation and service of each piece of Plumbing equipment.
3. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

4. The Contractor shall ensure that the appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing Sub-Contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the instruction.
5. The instruction sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference. Instruction shall include but not limited to:
   a. Use the printed installation, operation and maintenance instruction material included in the O&M manuals.
   b. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The instruction shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
   c. Discuss relevant health and safety issues and concerns.
   d. Discuss warranties and guarantees.
   e. Cover common troubleshooting problems and solutions.
   f. Explain information included in the O&M manuals and the location of all plans and manuals in the facility.
   g. Discuss any peculiarities of equipment installation or operation.
6. Hands-on instruction shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
7. The Contractor shall ensure that the Sub-Contractor fully explain and demonstrate the operation, function and overrides of any local packaged controls.
8. Instruction shall occur after functional testing is complete, unless approved otherwise by the Commissioner.

END OF SECTION 22 08 00

SECTION 22 16 00
NATURAL-GAS PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Pipes, tubes, and fittings, protective coating.

2. Piping and tubing joining materials.

3. Valves.

4. Pressure regulators.

B. The system shall comply with 2014 New York City Fuel Gas Code, and the latest Con Edison of New York Requirements.

1.3 DEFINITIONS

A. Exposed, Interior Installations: Exposed to view indoors. Examples include mechanical or plumbing equipment rooms.

B. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

1.4 PERFORMANCE REQUIREMENTS

A. Minimum Operating-Pressure Ratings:

1. Piping and Valves: 100 psig (690 kPa) minimum unless otherwise indicated.

2. Pressure Regulators: 100 psig (690 kPa) minimum unless otherwise indicated.

B. Design values of fuel gas supplied for these systems are as follows:

1. Nominal Heating Value (Natural Gas): 1000 Btu/cu.ft. (37.3 MJ/cu.m).

2. Nominal Specific Gravity: 0.6

C. Engineering Services: Provide restraints and anchors for natural-gas piping and equipment, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of the following:

1. Piping and tubing with associated components.

2. Valves. Include pressure rating, capacity, settings, and electrical connection data of selected models.

3. Pressure regulators. Indicate pressure ratings and capacities.

4. Dielectric fittings.

B. Shop Drawings: For natural-gas piping layout. Include plans, piping layout and elevations, sections, and details for fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to building structure. Detail location of anchors, alignment guides, and expansion joints and loops.

1. Detail mounting, supports, and valve arrangements for pressure regulator assembly.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans and details, drawn to scale, on which natural-gas piping is shown and coordinated with other installations, using input from installers of the items involved.

B. Qualification Data: For qualified professional engineer.

C. Welding certificates.

D. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For pressure regulators to include in emergency, operation, and maintenance manuals.

B. Final test reports.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Handling Flammable Liquids: Remove and dispose of liquids from existing natural-gas piping according to requirements of Con Edison of New York.

B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

C. Store and handle pipes and tubes having factory-applied protective coatings to avoid damaging coating, and protect from direct sunlight.

D. Protect stored PE pipes and valves from direct sunlight.

1.9 PROJECT CONDITIONS

A. Perform site survey, research public utility records, and verify existing utility locations. Contact Con Edison of New York where the Theater of the New City is located.

B. Interruption of Existing Natural-Gas Service: Do not interrupt natural-gas service to facilities occupied by Theater of the New City unless permitted under the following conditions and then only after arranging to provide purging and startup of natural-gas supply according to requirements indicated:

1. Notify Commissioner no fewer than two days in advance of proposed interruption of natural-gas service.

2. Do not proceed with interruption of natural-gas service without Commissioner 's written permission.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.

2. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.

3. Forged-Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:

a. Material Group: 1.1.

b. End Connections: Threaded or butt welding to match pipe.

c. Lapped Face: Not permitted underground.

d. Gasket Materials: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral-wound metal gaskets.

e. Bolts and Nuts: ASME B18.2.1, carbon steel aboveground and stainless steel underground.

4. Mechanical Couplings:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

(1) Dresser Piping Specialties; Division of Dresser, Inc.

(2) Smith-Blair, Inc.

(3) Wal-Rich Corporation.

(4) Or approved equal.

b. Steel flanges and tube with epoxy finish.

c. Buna-nitrile seals.

d. Steel bolts, washers, and nuts.

e. Coupling shall be capable of joining PE pipe to PE pipe, steel pipe to PE pipe, or steel pipe to steel pipe.

f. Steel body couplings installed underground on plastic pipe shall be factory equipped with anode.

2.2 JOINING MATERIALS

A. Joint Compound and Tape: Suitable for natural gas.

B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.3 MANUAL GAS SHUTOFF VALVES

A. General Requirements for Metallic Valves, NPS 2 (DN 50) and Smaller: Comply with ASME B16.33.

1. CWP Rating: 125 psig (862 kPa)

2. Threaded Ends: Comply with ASME B1.20.1.

3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.

4. Tamperproof Feature: Locking feature for valves.

5. Listing: Listed and labeled by an NRTL acceptable to the Commissioner for valves 1 inch (25 mm) and smaller.

6. Service Mark: Valves 1-1/4 inches (32 mm) to NPS 2 (DN 50) shall have initials "WOG" permanently marked on valve body.

B. One or Two-Piece, Bronze Ball Valve with Bronze Trim: MSS SP-110.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. BrassCraft Manufacturing Company; a Masco company.

b. Conbraco Industries, Inc.; Apollo Div.

c. Lyall, R. W. & Company, Inc.

d. McDonald, A. Y. Mfg. Co.

e. Perfection Corporation; a subsidiary of American Meter Company.

f. Or approved equal.

2. Body: Bronze, complying with ASTM B 584.

3. Ball: Chrome-plated brass.

4. Stem: Bronze; blowout proof.

5. Seats: Reinforced TFE; blowout proof.

6. Packing: Separate packnut with adjustable-stem packing threaded ends.

7. Ends: Threaded, flared, or socket.

8. CWP Rating: 600 psig (4140 kPa).

9. Listing: Valves NPS 1 (DN 25) and smaller shall be listed and labeled by an NRTL acceptable to the Commissioner.

10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

C. Bronze Plug Valves: MSS SP-78.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

a. Lee Brass Company.

b. McDonald, A. Y. Mfg. Co.

c. Nordstrom.

d. Or approved equal.

2. Body: Bronze, complying with ASTM B 584.

3. Plug: Bronze.

4. Ends: Threaded, socket, or flanged.

5. Operator: Square head or lug type with tamperproof feature where indicated.

6. Pressure Class: 125 psig (862 kPa).

7. Listing: Valves NPS 1 (DN 25) and smaller shall be listed and labeled by an NRTL acceptable to the Commissioner.

8. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

D. Cast-Iron, Nonlubricated Plug Valves: MSS SP-78.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

a. McDonald, A. Y. Mfg. Co.

b. Mueller Co.; Gas Products Div.

c. Xomox Corporation; a Crane company.

d. Or approved equal.

2. Body: Cast iron, complying with ASTM A 126, Class B.

3. Plug: Bronze or nickel-plated cast iron.

4. Seat: Coated with thermoplastic.

5. Stem Seal: Compatible with natural gas.

6. Ends: Threaded or flanged.

7. Operator: Square head or lug type with tamperproof feature where indicated.

8. Pressure Class: 125 psig (862 kPa).

9. Listing: Valves NPS 1 (DN 25) and smaller shall be listed and labeled by an NRTL acceptable to the Commissioner.

10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

E. Cast-Iron, Lubricated Plug Valves: MSS SP-78.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

a. Walworth.

b. Flowserve.

c. Homestead Valve; a division of Olson Technologies, Inc.

d. McDonald, A. Y. Mfg. Co.

e. Milliken Valve Company.

f. Mueller Co.; Gas Products Div.

g. R&M Energy Systems, A Unit of Robbins & Myers, Inc.

h. Or approved equal.

2. Body: Cast iron, complying with ASTM A 126, Class B.

3. Plug: Bronze or nickel-plated cast iron.

4. Seat: Coated with thermoplastic.

5. Stem Seal: Compatible with natural gas.

6. Ends: Threaded or flanged.

7. Operator: Square head or lug type with tamperproof feature where indicated.

8. Pressure Class: 125 psig (862 kPa).

9. Listing: Valves NPS 1 (DN 25) and smaller shall be listed and labeled by an NRTL acceptable to the Commissioner.

10. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

2.4 PRESSURE REGULATORS

A. Line Pressure Regulators: Comply with ANSI Z21.80.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

a. American Meter Company.

b. Eclipse Combustion, Inc.

c. Fisher Control Valves and Regulators Management.

d. Invensys.

e. Maxitrol Company.

f. Richards Industries; Jordan Valve Div.

g. Or approved equal.

2. Body and Diaphragm Case: Cast iron or die-cast aluminum.

3. Springs: Zinc-plated steel; interchangeable.

4. Diaphragm Plate: Zinc-plated steel.

5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.

6. Orifice: Aluminum; interchangeable.

7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.

8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet, and no pressure sensing piping external to the regulator.

9. Pressure regulator shall maintain discharge pressure setting downstream, and not exceed 150 percent of design discharge pressure at shutoff.

10. Overpressure Protection Device: Factory mounted on pressure regulator.

11. Atmospheric Vent: Factory, stainless-steel screen in opening if not connected to vent piping.

12. Maximum Inlet Pressure: 2 psig (13.8 kPa)

2.5 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are limited to, the following:

a. Capitol Manufacturing Company.

b. Central Plastics Company.

c. Hart Industries International, Inc.

d. Jomar International Ltd.

e. Matco-Norca, Inc.

f. McDonald, A. Y. Mfg. Co.

g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

h. Wilkins; a Zurn company.

i. Or approved equal.

2. Description:

a. Standard: ASSE 1079.

b. Pressure Rating: 125 psig (860 kPa) minimum at 180 deg F (82 deg C) 150 psig (1035 kPa) 250 psig (1725 kPa).

c. End Connections: Solder-joint copper alloy and threaded ferrous.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for natural-gas piping system to verify actual locations of piping connections before equipment installation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Close equipment shutoff valves before turning off natural gas to premises or piping section.

B. Inspect natural-gas piping to determine that natural-gas utilization devices are turned off in piping section affected.

C. Comply with code requirements for prevention of accidental ignition.

3.3 OUTDOOR PIPING INSTALLATION

A. Steel Piping with Protective Coating:

1. Apply joint cover kits to pipe after joining to cover, seal, and protect joints.

2. Repair damage to PE coating on pipe as recommended in writing by protective coating manufacturer.

3. Replace pipe having damaged PE coating with new pipe.

B. Install fittings for changes in direction and branch connections.

3.4 INDOOR PIPING INSTALLATION

A. Comply with the New York City Fuel Gas Code and Con Edison of New York for installation and purging of natural-gas piping.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for plumbing and mechanical equipment installations.

D. Install piping indicated to be exposed and piping in equipment rooms at right angles or parallel to building walls. Diagonal runs are prohibited in the cellar unless specifically indicated otherwise on drawings.

E. Locate valves for easy access.

F. Install natural-gas piping at uniform grade of 0.5 percent down toward drip and sediment traps.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Verify final equipment locations for roughing-in.

J. Comply with requirements in Sections 23 05 00 "Common Work Results for HVAC" and 23 74 13 "Packaged Rooftop Air Conditioning Unit" specifying gas-fired equipment for roughing-in requirements.

K. Drips and Sediment Traps: Install drips at points where condensate may collect, including meter outlets. Locate where accessible to permit cleaning and emptying. Do not install where condensate is subject to freezing.

1. Construct drips and sediment traps using tee fitting with bottom outlet plugged or capped. Use nipple a minimum length of 3 pipe diameters, but not less than 3 inches (75 mm) long and same size as connected pipe. Install with space below bottom of drip to remove plug or cap.

L. Extend relief vent connections for line regulators, and overpressure protection devices to outdoors and terminate with weatherproof vent cap at least 18" above the roof or sidewalk. Do not terminate vents under building overhang, canopies or near the openings, comply with the New York City Fuel Gas Code and Con Edison of New York requirements.

M. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.

N. Connect branch piping from top or side of horizontal piping.

O. Install unions in pipes NPS 2 (DN 50) and smaller, adjacent to each valve, at final connection to each piece of equipment. Unions are not required at flanged connections.

P. Do not use natural-gas piping as grounding electrode.

Q. Install strainer on inlet of each line-pressure regulator and automatic or electrically operated valve.

R. Install pressure gage upstream and downstream from each line regulator.

S. Install sleeves for piping penetrations of walls, ceilings, and floors.

T. Install sleeve seals for piping penetrations of concrete walls and slabs.

U. Install escutcheons for piping penetrations of walls, ceilings, and floors.

3.5 VALVE INSTALLATION

A. Install manual gas shutoff valve for each gas appliance ahead of connector.

B. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.

3.6 PIPING JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints:

1. Thread pipe with tapered pipe threads complying with ASME B1.20.1.

2. Cut threads full and clean using sharp dies.

3. Ream threaded pipe ends to remove burrs and restore full inside diameter of pipe.

4. Apply appropriate tape or thread compound to external pipe threads unless dryseal threading is specified.

5. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints:

1. Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators.

2. Bevel plain ends of steel pipe.

3. Patch factory-applied protective coating as recommended by manufacturer at field welds and where damage to coating occurs during construction.

3.7 HANGER AND SUPPORT INSTALLATION

A. Install hangers for horizontal steel piping with the following maximum spacing and minimum rod sizes:

1. NPS 1 (DN 25) and Smaller: Maximum span, 96 inches (2438 mm); minimum rod size, 3/8 inch (10 mm).

2. NPS 1-1/4 (DN 32): Maximum span, 108 inches (2743 mm); minimum rod size, 3/8 inch (10 mm).

3. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): Maximum span, 108 inches (2743 mm); minimum rod size, 3/8 inch (10 mm).

4. NPS 2-1/2 to NPS 3-1/2 (DN 65 to DN 90): Maximum span, 10 feet (3 m); minimum rod size, 1/2 inch (13 mm).

5. NPS 4 (DN 100) and Larger: Maximum span, 10 feet (3 m); minimum rod size, 5/8 inch (15.8 mm).

3.8 CONNECTIONS

A. Connect to utility's gas service according to Con Edison of New York procedures and requirements.

B. Install natural-gas piping electrically continuous, and bonded to gas appliance equipment grounding conductor of the circuit powering the appliance according to NFPA 70.

C. Install piping adjacent to appliances to allow service and maintenance of appliances.

D. Connect piping to equipment using manual gas shutoff valves and unions. Install valve within 72 inches (1800 mm) of each gas-fired equipment. Install union between valve and equipment. Coordinate the installation of new gas piping with existing conditions.

E. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

F. Connect gas vents to vent outlets of gas pressure regulators, run individual piping from each outlet to outdoor location. Terminate with approved cap.

3.9 LABELING AND IDENTIFYING

A. Install detectable warning tape directly above gas piping, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 PAINTING

A. Paint exposed, exterior metal piping, valves.

1. Alkyd System: MPI EXT 5.1D.

a. Prime Coat: Alkyd anticorrosive metal primer.

b. Intermediate Coat: Exterior alkyd enamel matching topcoat.

c. Topcoat: Exterior alkyd enamel.

d. Color: Gray .

B. Paint exposed, interior metal piping, valves, regulators.

1. Latex Over Alkyd Primer System: MPI INT 5.1Q.

a. Prime Coat: Alkyd anticorrosive or Quick-drying alkyd metal primer.

b. Intermediate Coat: Interior latex matching topcoat.

c. Topcoat: Interior latex.

d. Color: Gray .

2. Alkyd System: MPI INT 5.1E.

a. Prime Coat: Alkyd anticorrosive or Quick-drying alkyd metal primer.

b. Intermediate Coat: Interior alkyd matching topcoat.

c. Topcoat: Interior alkyd.

d. Color: Gray .

C. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

3.11 FIELD QUALITY CONTROL

A. Perform tests and inspections before piping is painted or concealed.

B. Tests and Inspections:

1. Test, inspect, and purge natural gas according to New York City Fuel Gas Code, Con Edison of New York and the Commissioner. Piping testing shall be as per NYC Fuel Gas Code Section 406

C. Natural-gas piping will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Engage a factory-authorized service representative to instruct City of New York maintenance personnel to adjust, operate and maintain earthquake valves and safety shut-off valves.

3.12 OUTDOOR PIPING SCHEDULE

A. Aboveground natural-gas piping shall be:

1. Steel pipe with malleable-iron fittings and threaded joints. Piping 3" and smaller, pressure 0.5 psig or less.

3.13 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES LESS THAN 0.5 PSIG (3.45 kPa)

A. Aboveground, piping NPS 3 (DN 75) and smaller shall be the following:

1. Corrugated stainless-steel tubing with mechanical fittings having socket or threaded ends to match adjacent piping.

2. Steel pipe with malleable-iron fittings and threaded joints.

B. Aboveground distribution piping and vent piping shall be the following:

1. Steel pipe with malleable-iron fittings and threaded joints. Piping 3" and smaller, pressure 0.5 psig (14" wc) or less.

3.14 ABOVEGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

A. Valves for pipe sizes NPS 2 (DN 50) and smaller shall be one of the following:

1. One-piece, bronze ball valve with bronze trim.

2. Two-piece, full port, bronze ball valves with bronze trim.

3. Bronze plug valve.

END OF SECTION 22 16 00

SECTION 23 01 30.51
HVAC AIR-DISTRIBUTION SYSTEM CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract

1.2 RELATED SECTIONS

A. Section 23 05 00 Common Work Results for HVAC

B. Section 23 07 00 HVAC Insulation

C. Section 23 31 13 Metal Ductwork

1.3 SUMMARY

A. Section includes cleaning HVAC air-distribution equipment, ducts, (supply, return and exhausts) plenums, and system components.

1.4 DEFINITIONS

A. ASCS: Air systems cleaning specialist.

B. NADCA: National Air Duct Cleaners Association.

C. Air Distribution Systems includes air distribution equipment, ducts (supply, return and exhaust), plenums and system components.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: Certified ASCS (Air System Cleaning Specialist).

B. Strategies and procedures plan.

C. Cleanliness verification report.

1.6 QUALITY ASSURANCE

A. UL Compliance: Comply with UL 181 and UL 181A for fibrous-glass ducts.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine HVAC air-distribution equipment, ducts, plenums, and system components to determine appropriate methods, tools, and equipment required for performance of the Work.

B. Perform "Project Evaluation and Recommendation" according to National Air Duct Cleaners Association (NADCA) Assessment, Cleaning, and Restoration (ACR) 2006.

C. Prepare written report listing conditions detrimental to performance of the Work.

D. Proceed with work only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare a written plan that includes strategies and step-by-step procedures. At a minimum, include the following:

1. Supervisor contact information.

2. Work schedule including location, times, and impact on occupied areas.

3. Methods and materials planned for each HVAC component type.

4. Required support from others.

5. Equipment and material storage requirements.

6. Exhaust equipment setup locations.

B. Use the service openings, as required for proper cleaning, at various points of the HVAC system for physical and mechanical entry and for inspection. If service opening are not sufficient to inspect and clean air distribution system, provide additional opening as required.

C. If service opening are not sufficient to inspect and clean air distribution system, provide additional opening as required.

D. Comply with NADCA ACR 2006, "Guidelines for Constructing Service Openings in HVAC Systems" Section.

3.3 CLEANING

A. Comply with NADCA ACR 2006.

B. Remove visible surface contaminants and deposits from within the HVAC system.

C. Systems and Components to Be Cleaned:

1. Air devices for supply, return air and exhaust.

2. Air-terminal units.

3. Ductwork:

a. Supply-air ducts, including turning vanes and reheat coils from air devices to the air-handling unit.

b. If service opening are not sufficient to inspect and clean air distribution system, provide additional opening as required.

c. Return-air ducts to the air-handling unit.

d. Supply ducts from terminal boxes to air-handling unit

e. Supply ducts from air devices to terminal

f. Return-air ducts from terminal boxes to air-handling unit

g. Return ducts from air devices to terminal box

h. Return-air ducts from air devices to air handling unit

i. Exhaust-air ducts from air devices to exhaust fan

j. Exhaust-air ducts from terminal boxes to exhaust fan

k. Exhaust-air ducts from air devices to terminal box.

4. Air-Handling Units, Air, Heating & Ventilation Units, Fans, etc. :

a. Interior surfaces of the unit casing.

b. Coil surfaces compartment.

c. Condensate drain pans.

d. Fans, fan blades, and fan housings.

5. Filters and filter housings.

D. Collect debris removed during cleaning. Ensure that debris is not dispersed outside the HVAC system during the cleaning process.

E. Particulate Collection:

1. For particulate collection equipment, include adequate filtration to contain debris removed. Locate equipment downwind and away from all air intakes and other points of entry into the building.

2. HEPA filtration with 99.97 percent collection efficiency for particles sized 0.3 micrometer or larger shall be used where the particulate collection equipment is exhausting inside the building,

F. Control odors and mist vapors during the cleaning and restoration process.

G. Mark the position of manual volume dampers and air-directional mechanical devices inside the system prior to cleaning. Restore them to their marked position on completion of cleaning.

H. System components shall be cleaned so that all HVAC system components are visibly clean. On completion, all components must be returned to those settings recorded just prior to cleaning operations.

I. Clean all air-distribution devices, registers, grilles, and diffusers.

J. Clean visible surface contamination deposits according to NADCA ACR 2006 and the following:

1. Clean air-handling units, airstream surfaces, components, condensate collectors, and drains.

2. Ensure that a suitable operative drainage system is in place prior to beginning wash-down procedures.

3. Clean evaporator coils, reheat coils, and other airstream components.

K. Duct Systems:

1. Create service openings in the HVAC system as necessary to accommodate cleaning.

2. Mechanically clean duct systems specified to remove all visible contaminants so that the systems are capable of passing the HVAC System Cleanliness Tests (see NADCA ACR 2006).

L. Mechanical Cleaning Methodology:

1. Source-Removal Cleaning Methods: The HVAC system shall be cleaned using source-removal mechanical cleaning methods designed to extract contaminants from within the HVAC system and to safely remove these contaminants from the facility. No cleaning method, or combination of methods, shall be used that could potentially damage components of the HVAC system or negatively alter the integrity of the system.

a. Use continuously operating vacuum-collection devices to keep each section being cleaned under negative pressure.

b. Cleaning methods that require mechanical agitation devices to dislodge debris that is adhered to interior surfaces of HVAC system components shall be equipped to safely remove these devices. Cleaning methods shall not damage the integrity of HVAC system components or damage porous surface materials such as duct and plenum liners.

2. Cleaning Mineral-Fiber Insulation Components:

   a. Fibrous-glass thermal or acoustical insulation elements present in equipment or ductwork shall be thoroughly cleaned with HEPA vacuuming equipment while the HVAC system is under constant negative pressure and shall not be permitted to get wet according to NADCA ACR 2006.

   b. Cleaning methods used shall not cause damage to fibrous-glass components and will render the system capable of passing the HVAC System Cleanliness Tests (see NADCA ACR 2006).

   c. Fibrous materials that become wet shall be discarded and replaced.

M. Coil Cleaning:

1. Measure static-pressure differential across each coil.

2. See NADCA ACR 2006, "Coil Surface Cleaning" Section. Type 1, or Type 1 and Type 2, cleaning methods shall be used to render the coil visibly clean and capable of passing Coil Cleaning Verification (see applicable NADCA ACR 2006).

3. Coil drain pans shall be subject to NADCA ACR 2006, "Non-Porous Surfaces Cleaning Verification." Ensure that condensate drain pans are operational.

4. Electric-resistance coils shall be de-energized, locked out, and tagged before cleaning.

5. Cleaning methods shall not cause any appreciable damage to, cause displacement of, inhibit heat transfer, or cause erosion of the coil surface or fins, and shall comply with coil manufacturer's written recommendations when available.

6. Rinse thoroughly with clean water to remove any latent residues.

N. Antimicrobial Agents and Coatings:

1. Apply antimicrobial agents and coatings if active fungal growth is reasonably suspected or where unacceptable levels of fungal contamination have been verified. Apply antimicrobial agents and coatings according to manufacturer's written recommendations and EPA registration listing after the removal of surface deposits and debris.

2. When used, antimicrobial treatments and coatings shall be applied after the system is rendered clean.

3. Apply antimicrobial agents and coatings directly onto surfaces of interior ductwork.

4. Sanitizing agent products shall be registered by the EPA as specifically intended for use in HVAC systems and ductwork.

3.4 CLEANLINESS VERIFICATION

A. Verify cleanliness according to NADCA ACR 2006, "Verification of HVAC System Cleanliness" Section.

B. Verify HVAC system cleanliness after mechanical cleaning and before applying any treatment or introducing any treatment-related substance to the HVAC system, including biocidal agents and coatings.

C. Perform visual inspection for cleanliness. If no contaminants are evident through visual inspection, the HVAC system shall be considered clean. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be re-cleaned and subjected to re-inspection for cleanliness.

D. Verification of Coil Cleaning:

1. Measure static-pressure differential across each coil.

2. Coil will be considered clean if cleaning restored the coil static-pressure differential within 10 percent of inches wg (Pa), the differential measured when the coil was first installed.

3. When coil pressure drop is unknown. The coil will be considered clean if the coil is free of foreign matter and chemical residue, based on a thorough visual inspection.

E. Prepare a written cleanliness verification report. At a minimum, include the following:

1. Written documentation of the success of the cleaning.

2. Site inspection reports, initialed by supervisor, including notation on areas of inspection, as verified through visual inspection.

3. Surface comparison test results if required.

4. Gravimetric analysis (nonporous surfaces only).

5. System areas found to be damaged.

3.5 RESTORATION

A. Restore and repair HVAC air-distribution equipment, ducts, plenums, and components according to NADCA ACR 2006, "Restoration and Repair of Mechanical Systems" Section.

B. Restore service openings capable of future reopening. Comply with requirements in Section 233113 "Metal Ductwork." Include location of service openings in Project closeout report.

C. Replace fibrous-glass materials that cannot be restored by cleaning or resurfacing. Comply with requirements in Section 233113 "Metal Ductwork."

D. Replace damaged insulation according to Section 230700 "HVAC Insulation."

E. Ensure that closures do not hinder or alter airflow.

F. New closure materials, including insulation, shall match opened materials and shall have removable closure panels fitted with gaskets and fasteners.

END OF SECTION 23 01 30.51

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SECTION 23 05 00
COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Section 23 05 50 - "Basic Mechanical Materials and Methods".

1.3 SECTION INCLUDES

A. This Section includes general administrative and procedural requirements for mechanical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in General Conditions:

1. Design Criteria.
2. Referenced Standards.
3. Submittals.
4. Maintenance manuals.
5. Codes, Permits and Inspections.
6. Definitions and Interpretations.
7. Interpretation of the drawings and specification
8. Delivery, Storage and Handling
9. Operating Instructions
10. Guarantees and Certifications
11. Rough-In
12. Mechanical Installations
13. Cutting and Patching

14. Site Visitation Surveys and Measurements

15. Removals and Alterations

16. Connections to existing work

17. Preconstruction Testing - Existing system

18. Existing Systems Design

19. Refrigerant Handling

1.4 DESIGN CRITERIA

A. Outdoor Design Conditions

1. Summer: 88°F (d.b.) / 72°F (w.b.)

2. Per ASHRAE Handbook Fundamentals 2.5% cooling dry bulb with corresponding mean coincidental wet bulb NYS Energy Code.

3. Winter: 11°F

B. Indoor Design Conditions

1. Summer:

a. Occupied Spaces:

(i) Temperature: 75°F + 2°F (occupied); 80°F + 2°F (unoccupied)
(ii) Relative Humidity: 50% - 55% RH

b. Unconditioned Spaces (mechanical and electric rooms)

(i) Temperature: mechanical ventilation thermostatically controlled to obtain 10°F above ambient temperature
(ii) Relative Humidity: not controlled

2. Winter

a. Occupied Spaces:

(i) Temperature: 68°F + 2°F (occupied); 65°F + + 2°F (unoccupied)
(ii) Relative Humidity:- no humidification is included in the project.

b. Unconditioned Spaces (mechanical rooms)

(i) Temperature: 64°F + 2°F (winter), 100°F + 2°F (summer)
(ii) Relative Humidity: no humidification is included in this project.

C. Acoustical Criteria:

1. Noise levels due to equipment and ductwork shall be designed to achieve the following Noise Criteria (NC) levels:

General Office	NC-40
Toilet Rooms	NC-45
Lobbies	NC-45
Back-of-House Spaces	NC-45/55

D. Outside Air Ventilation Rates (per ASHRAE Standard 62-2001)

1. Offices - 20 cfm per person

2. Assembly Rooms - 15 cfm per person

3. Reception areas B 15 cfm per person

4. Corridors B 0.10 cfm per sq.ft.

5. Toilets B 50 cfm per water closet or urinal

E. Relative Pressurization Criteria

1. Overall building pressurization will be positive in relation to the outdoors

2. Bathrooms and janitor's closets will be negative in relation to the corridors

1.5 REFERENCE STANDARDS: The reference standards listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

A. Air-Conditioning Heating and Refrigeration Institute (AHRI):

B. American National Standard Institute (ANSI):

C. American Movement and Control Association International, Inc. (AMCA):

D. American Society of Mechanical Engineers (ASME):

E. American Society for Testing and Materials (ASTM):

F. National Fire Protection Association (NFPA):

G. Associated Air Balance Council (AABC).

H. American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).

I. American Welding Society (AWS)

J. Cooling Technology Institute (CTI).

K. Environmental Protection Agency (EPA).

L. National Environmental Balancing Bureau (NEBB).

M. National Electrical Code (NEC)

N. Occupational Safety and Health Administration (OSHA).

O. Underwriters Laboratories (UL).

1.6 SUBMITTALS

A. Refer to DDC General Conditions Section 013300 "Submittal Procedures."

B. Prior to purchasing any equipment or materials, a list of their manufacturers shall be submitted for review.

C. Prior to assembling or installing the work, the following shall be submitted for review:

1. Catalog information, factory assembly drawings and field installation drawings as required for a complete explanation and description of all items of equipment.

2. Shop drawings detailing fabrication and installation for supports for mechanical materials and equipment.

3. Contractor shall submit complete AC unit sheet metal and piping shop drawings to the AC unit manufacturer prior to submission to the Commissioner. The AC unit manufacturer shall approve the air performance and acoustical performance of the AC units in the location and with the ductwork and piping configuration and construction as indicated on the shop drawing. AC unit manufacturer shall indicate approval directly on the shop drawing.

4. Welder Certificates signed by Contractor certifying that welders comply with requirements specified under General Conditions and administrated by Americal Welding Society.

D. Documents will not be accepted for review unless:

1. They include complete information pertaining to appurtenances and accessories.

2. They are submitted as a package where they pertain to related items.

3. They are properly marked with service or function, project name, where they consist of catalog sheets displaying other items which are not applicable.

4. They indicate the project name and address along with the Contractor's name, address and phone number.

5. They are properly marked with external connection identification as related to the project where they consist of standard factory assembly or field installation drawings.

E. Shop Drawing Review

1. The purpose of the review of shop drawings is to maintain integrity of the design. Unless the contractor clearly points out changes, substitutions, deletions or any other differences between the submission and the Contract Documents in writing on the Contractor's letterhead, review by the Commissioner does not constitute acceptance. It is not to be assumed that the Commissioner has read the text nor reviewed the technical data of a manufactured item and its components including where the manufacturer has pointed out differences between his product and the specified model.

2. It is the responsibility of the contractor to confirm all dimensions, quantities, and the coordination of materials and products supplied. Review of shop drawings containing errors does not relieve the contractor from making corrections at his expense.

3. Substitutions of equipment, systems, materials, temperature controls must be coordinated by the Contractor with Commissioner which may be involved with the item, such as, but not limited to, equipment substitutions which change electrical requirements, or hanging or support weights or dimensions.

F. Explanation of Shop Drawing Stamp

1. Reviewed - No Exception Taken: indicates that we have not found any reason why this item should not be acceptable within the intent of the contract documents.

2. Exception Taken As Noted: indicates that we have found questionable components which if corrected or otherwise explained make the product acceptable.

3. Revised and Resubmit: indicates that this item should be resubmitted for review before further processing.

4. Resubmit Specified Item: indicates that the item will not meet the intent of the Contract.

5. Incomplete - Resubmit: Indicates that the submission is not complete and ready for review by the Commissioner.

6. Verified for Electrical Services: Indicates that the electrical requirements has been confirmed with the electrical contract documents.

7. No shop drawing stamp or note shall constitute an order to fabricate or ship. Such notification can only be performed by the Commissioner, the Contractor scheduling his own work, or the City of New York.

8. The Contractor is responsible for having "Reviewed" copies of shop drawings bearing the Reviewed - No Exception Taken stamp of the Commissioner or Construction Manager are kept on the job site and work is implemented in the field in accordance with these documents.

1.7 CODES, PERMITS AND INSPECTIONS

A. All work shall meet or exceed the latest requirements of all national, state, county, municipal and other authorities exercising jurisdiction over construction work at the project. These include, but are not limited to the following:

1. NFPA National Fire Codes

2. New York State Department of Health

3. New York City Construction Code

B. All required permits and inspection certificates shall be obtained, paid for, and made available at the completion of the work.

C. Any portion of the work which is not subject to the approval of NYC DOB and FDNY, shall be governed by the applicable sections of the overall National Fire Code, as published by the National Fire Protection Association.

D. Installation procedures, methods, and conditions shall comply with the latest requirements of The Federal Occupational Safety and Health Act.

E. The Contractor shall be responsible for the installation and filing until the installation has been approved by the NYC DOB.

1.8 DEFINITIONS AND INTERPRETATIONS

A. Specific items of terminology, as used herein or on drawings, shall have the following meanings.

1. "Piping"--Pipe, fittings, flanges, valves, controls, hangers, traps, drains, insulation, vents, and items customarily required in connection with the transfer of fluids.

2. "Concealed"--Embedded in masonry or other construction, installed behind wall furring, within double partitions or hung ceilings, in crawl spaces, in shafts.

3. "Exposed"--Not concealed.

4. Where reference is made to N.E.M.A. Standards, it shall be understood that this reference is to the "Approved Standards", published by the National Electrical Manufacturers Association, Main Office.

5. Where reference is made to "A.N.S.I. Standards", it shall be understood that this reference is to the standards published by the American National Standards Institute Incorporated.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 OPERATING INSTRUCTIONS

A. After all final tests and adjustments have been completed, fully instruct the Commissioner in all details of operation for equipment installed. Supply qualified personnel to operate equipment for sufficient length of time to assure that Commissioner is properly qualified to take over operation and maintenance procedures. Supply qualified personnel to operate equipment for sufficient length of time as required to meet all performance tests.

3.2 GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from leaks or defects. Any defective materials or workmanship as well as damage to the existing conditions resulting from same shall be replaced or repaired as directed for the duration of stipulated guaranteed periods.

B. Non-durable replaceable items such as air filter media do not require replacement after the date of acceptance. If received in writing, requests to have earlier acceptance dates established for these items will be honored.

C. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of heating and air conditioning equipment.

3.3 ROUGH-IN

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

B. Refer to equipment specifications in Divisions 02 through 26 for rough-in requirements.

3.4 MECHANICAL INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of mechanical systems, materials, and equipment. Comply with the following requirements:

B. Coordinate mechanical systems, equipment, and materials installation with other building components.

C. Verify all dimensions by field measurements.

D. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.

E. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

F. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.

1. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

2. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

3. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Commissioner.

4. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

5. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

6. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

3.5 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with General Conditions. In addition to the requirements specified in General Conditions, the following requirements apply:

1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

B. Perform cutting, fitting, and patching of mechanical equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work.

2. Remove and replace defective Work.

3. Remove and replace Work not conforming to requirements of the Contract Documents.

4. Remove samples of installed Work as specified for testing.

5. Install equipment and materials in existing structures.

6. Upon written instructions from the Commissioner, uncover and restore Work to provide for Commissioner observation of concealed Work.

C. Cut, remove and legally dispose of selected mechanical equipment, components, and materials as indicated, including but not limited to removal of mechanical piping, heating units, plumbing fixtures and trim, and other mechanical items made obsolete by the new Work.

D. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

E. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

1. Patch existing finished surfaces and building components using new materials matching existing materials and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

a. Refer to General Conditions Section 01 40 00 “Quality Requirements”

3.6 EXISTING CONDITIONS AND CONTRACT DOCUMENTS

A. All Existing Conditions cannot be completely detailed on the drawings. These include, but are not limited to piping fixtures, equipment, lighting, supports etc. Removal and relocation of certain existing work will be necessary for the performance of the general work. The Contractor shall carefully examine all trades drawings, specifications and the DDC General Conditions to include all required costs in making up their bid proposal. Contractor shall make all necessary adjustments at no additional cost to City of New York and provide entire scope indicated on Contract Documents.

B. The Contractor to investigate each space through which equipment must be moved. Where necessary, equipment shall be shipped from manufacturer in sections of size suitable for moving through restrictive spaces available. Ascertain at what time of day equipment may be moved through certain restrictive areas.

C. The Contractor to become thoroughly familiar with all conditions under which work will be installed, as he will be held responsible for any assumptions, any omissions or errors made as a result of failure to become familiar with Existing Conditions and Contract Documents.

D. Install work so as to be readily accessible for operation, maintenance and repair. Minor deviations from drawings may be made to accomplish this, but changes which involve extra cost shall not be made without approval.

3.7 REMOVALS AND ALTERATIONS

A. The contractor shall provide all required labor, materials, equipment and perform all operations for complete demolition, removal and relocation of the existing work as indicated on the drawings and/or as specified or described.

B. All removed equipment and material shall be removed from the project site.

C. Unless otherwise specifically specified, include all cutting and patching of existing floors, walls, partitions and other materials in the existing building. The Contractor shall restore these areas to original conditions.

3.8 CONNECTIONS TO EXISTING WORK

A. Plan installation of new work and connections to existing work to ensure minimum interference with regular operation of existing facilities. Submit to the Commissioner for approval, date schedule of necessary temporary shut-downs of existing services. All shutdowns shall be made at such times as will not interfere with regular operation of existing facilities and only after written approval of Commissioner. To ensure continuous operation, make necessary temporary connections between new and existing work. All costs resulting from temporary shut-downs shall be borne by the Contractor.

B. The contractor shall coordinate all connections to existing work with the Commissioner. Contractor shall field verify exact location of all existing services.

C. Connect new work to existing work in neat and approved manner. Restore existing work disturbed to original condition.

3.9 PRE-OCCUPANCY SPACE FLUSH OUT

A. At completion of construction, prior to turn over of the building, the contractor shall conduct a pre-occupancy flush out of the system as follows:

1. All supply air systems shall be run at 100% fan capacity for a period of two weeks.

2. During the flush out, all outside air dampers shall be locked into the 100% outside air position. Return air dampers shall be fully closed and all spill air dampers shall be 100% open. Exhaust fans shall be operated at 100% exhaust.

3. Cooling and/or heating coil valves shall be controlled by the building management system to provide properly tempered and dehumidified air.

    a. Supply air temperature shall be set to provide a maximum space temperature of 78°F, minimum space temperature of 66°F and a maximum space humidity of 60% RH.

4. All exhaust fans that are required to run to maintain proper building pressurization shall be operated at 100% fan capacity for the flush out period.

3.10 REFRIGERANT HANDLING

A. Refrigerant Installation and Disposal: Perform all work related to refrigerant contained in chillers, cooling coils, air conditioners, and similar equipment, including related piping, in strict accordance with the following requirements:

1. ASHRAE Standard 15 and Related Revisions: Safety Code for Mechanical Refrigeration.

2. ASHRAE Standard 34 and Related Revisions: Number Designation and Safety Classification of Refrigerants.

3. United States Environmental Protection Agency (US EPA) requirements of Section 808 (Prohibition of Venting and Regulation of CFC).

B. Recovered refrigerant is the property of the Contractor.

END OF SECTION 23 05 00

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SECTION 23 05 13
COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. This Section includes basic requirements for factory-installed and field-installed motors.

B. Related Sections include the following:

1. Section 23 34 00 Fans

2. Section 23 74 13 Packaged Rooftop Air Conditioning Units.

1.3 DEFINITIONS

A. Factory-Installed Motor: A motor installed by motorized-equipment manufacturer as a component of equipment.

B. Field-Installed Motor: A motor installed at Project site and not factory installed as an integral component of motorized equipment.

1.4 SUBMITTALS

A. Product Data for Field-Installed Motors: For each type and size of motor, provide nameplate data and ratings; shipping, installed, and operating weights; mounting arrangements; size, type, and location of winding terminations; conduit entry and ground lug locations; and information on coatings or finishes.

B. Shop Drawings for Field-Installed Motors: Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Include the following:

1. Each installed unit's type and details.

2. Nameplate legends.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain field-installed motors of a single type through one source from a single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NFPA, and marked for intended use.

C. Comply with NFPA 70.

1.6 COORDINATION

A. Coordinate features of motors, installed units, and accessory devices. Provide motors that are:

1. Compatible with the following:

a. Magnetic controllers.

b. Multispeed controllers.

c. Reduced-voltage controllers.

d. Insert Option Here

2. Designed and labeled for use with variable frequency controllers, and suitable for use throughout speed range without overheating.

3. Matched to torque and horsepower requirements of the load.

4. Matched to ratings and characteristics of supply circuit and required control sequence.

B. Coordinate motor support with requirements for driven load; access for maintenance and motor replacement; installation of accessories, belts, belt guards; and adjustment of sliding rails for belt tensioning.

PART 2 - PRODUCTS

2.1 MOTOR REQUIREMENTS

A. Motor requirements apply to factory-installed and field-installed motors except as follows:

1. Manufacturer for a factory-installed motor requires ratings, performance, or characteristics, other than those specified in this Section, to meet performance specified.

2.2 MOTOR CHARACTERISTICS

A. Motors ½ HP and Larger: Three phase.

B. Motors Smaller Than ½ HP: Single phase.

C. Frequency Rating: 60 Hz.

D. Voltage Rating: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.

E. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.

F. Duty: Continuous duty at ambient temperature of 105 deg F (40 deg C) and at altitude of 3300 feet (1005 m) above sea level.

G. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

H. Enclosure: Open dripproof.

2.3 POLYPHASE MOTORS

A. Description: NEMA MG 1, Design E, medium induction motor. Efficiency in accordance with NEMA standards for Premium Efficient motors and with applicable EPACT Efficiency Standards.

B. Stator: Copper windings, unless otherwise indicated.

1. Multispeed motors shall have separate winding for each speed.

C. Rotor: Squirrel cage, unless otherwise indicated.

D. Bearings: Double-shielded, prelubricated ball bearings suitable for radial and thrust loading.

E. Temperature Rise: Match insulation rating, unless otherwise indicated.

F. Insulation: Class F, unless otherwise indicated.

G. Code Letter Designation:

1. Motors 15 HP and Larger: NEMA starting Code F or G.

2. Motors Smaller Than 15 HP: Manufacturer's standard starting characteristic.

H. Enclosure: Cast iron for motors 7.5 hp and larger; rolled steel for motors smaller than 7.5 hp.

1. Finish: Gray enamel.

2.4 POLYPHASE MOTORS WITH ADDITIONAL REQUIREMENTS

A. Motors Used with Reduced-Inrush Controllers: Match wiring connection requirements for controller with required motor leads. Provide terminals in motor terminal box, suited to control method.

B. Motors Used with Variable Frequency Controllers: Ratings, characteristics, and features coordinated with and approved by controller manufacturer.

1. Designed with critical vibration frequencies outside operating range of controller output.

2. Temperature Rise: Matched to rating for Class B insulation.

3. Insulation: Class H.

4. Thermal Protection: Comply with NEMA MG 1 requirements for thermally protected motors.

5. Inverter rated: Comply with NEMA MG-1 Part 31.4.4.2 requirements for inverter rated motors.

C. Rugged-Duty Motors: Totally enclosed, with 1.25 minimum service factor, greased bearings, integral condensate drains, and capped relief vents. Windings insulated with nonhygroscopic material.

1. Finish: Chemical-resistant paint over corrosion-resistant primer.

2.5 SINGLE-PHASE MOTORS

A. Type: One of the following, to suit starting torque and requirements of specific motor application:

1. Permanent-split capacitor.

2. Split-phase start, capacitor run.

3. Capacitor start, capacitor run.

B. Shaded-Pole Motors: For motors 1/20 hp and smaller only.

C. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.

D. Bearings: Ball type for belt-connected motors and other motors with high radial forces on motor shaft; sealed, prelubricated-sleeve type for other single-phase motors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive field-installed motors for compliance with requirements, installation tolerances, and other conditions affecting performance.

B. Examine roughing-in of conduit systems to verify actual locations of conduit connections before motor installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 MOTOR INSTALLATION

A. Anchor each motor assembly to base, adjustable rails, or other support, arranged and sized according to manufacturer's written instructions. Attach by bolting. Level and align with load transfer link.

3.3 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Run each motor with its controller. Demonstrate correct rotation, alignment, and speed at motor design load.

2. Test interlocks and control features for proper operation.

3. Verify that current in each phase is within nameplate rating.

B. Testing: Perform the following field quality-control testing:

1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.15.1. Certify compliance with test parameters.

2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

3.4 ADJUSTING

A. Align motors, bases, shafts, pulleys and belts. Tension belts according to manufacturer's written instructions.

3.5 CLEANING

A. After completing equipment installation, inspect unit components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.

B. Clean motors, on completion of installation, according to manufacturer's written instructions.

END OF SECTION 23 05 13

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SECTION 23 05 15
VARIABLE FREQUENCY CONTROLLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 23 05 00 “Common Work Results for HVAC”.

2. Section 23 05 50 “Basic Mechanical Materials and Methods”.

3. Division 23 Section “Enclosed Controllers” for control wiring.

4. Division 26 Electrical

1.3 SECTION INCLUDES

A. This Section includes furnishing of solid-state, PWM, VFCs for speed control of three-phase, squirrel-cage induction motors.

1.4 DEFINITIONS

A. BMS: Building management system.

B. IGBT: Integrated gate bipolar transistor.

C. LAN: Local area network.

D. PID: Control action, proportional plus integral plus derivative.

E. PWM: Pulse-width modulated.

F. VFC: Variable frequency controller.

1.5 SUBMITTALS

A. Product Data: For each type of VFC. Include dimensions, mounting arrangements, location for conduit entries, shipping and operating weights, and manufacturer's technical data on features, performance, electrical ratings, characteristics, and finishes.

B. Shop Drawings: For each VFC.

1. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:

a. Each installed unit's type and details.

b. Nameplate legends.

c. Short-circuit current rating of integrated unit.

d. UL listing for series rating of overcurrent protective devices in combination controllers.

2. Wiring Diagrams: Power, signal, and control wiring for VFCs, including connections for external wiring. Provide schematic wiring diagram for each type of VFC.

C. Manufacturer Seismic Qualification Certification: Submit certification that VFCs, accessories, and components will withstand seismic forces as specified under another section of this work. Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit any units required for smoke control will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For VFCs, all installed devices, and components to include in emergency, operation, and maintenance manuals. In addition to items specified in General Conditions include the following:

1. Routine maintenance requirements for VFCs and all installed components.

F. Harmonics: Submit calculations to demonstrate that the total harmonics produced by all of the VFC’s connected to the system at the electrical service point shall be no greater than the allowable harmonics as follows:

1. The total harmonics produced by all of the VFC's connected to the system, including VFC's provided integral with HVAC equipment, at the Point of Common Coupling (PCC) shall be no greater than the allowable harmonics for SpecialGeneralDedicated systems as specified by IEEE Standard 519 tables 10.2 and 10.3, based on the installed source KVA. The PCC shall be the primary side of the electrical service transformer(s) for calculating current distortion, and the PCC shall be the secondary side of the electrical service transformer(s) for calculating voltage distortion. Where the installed source KVA is not indicated on the Electrical drawings, calculations shall be based on 60 percent of the KVA of the service switches, not including the fire pump.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain VFCs of a single type through one source from a single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NFPA, and marked for intended use.

C. Comply with NFPA 70.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation, capable of driving full load without derating, under the following conditions, unless otherwise indicated:

1. Ambient Temperature: 0 to 40 deg C.

2. Humidity: Less than 90 percent (noncondensing).

3. Altitude: Not exceeding 3300 feet (1000 m).

1.8 COORDINATION

A. Coordinate layout and installation of VFCs with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Coordinate features of VFCs, installed units, and accessory devices with pilot devices and control circuits to which they connect.

C. Coordinate features, accessories, and functions of each VFC and each installed unit with ratings and characteristics of supply circuit, motor, required control sequence, and duty cycle of motor and load.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. ABB Power Distribution, Inc.; ABB Control, Inc. Subsidiary.
2. Eaton Corporation; Cutler-Hammer Products.
3. General Electric Company; GE Industrial Systems.
4. Siemens Energy and Automation; Industrial Products Division.
5. Square D.
6. Unico, Inc.
7. Yaskawa Electric America
8. Or approved equal

2.2 VARIABLE FREQUENCY CONTROLLERS

A. Description: NEMA ICS 2, IGBT, PWM, VFC; listed and labeled as a complete unit and arranged to provide variable speed of an NEMA MG 1, Design B, 3-phase induction motor by adjusting output voltage and frequency.

1. Provide unit suitable for operation of standard efficiency and premium efficiency motors as defined by NEMA MG 1.
2. VFC(s) for operation of motors 30 horsepower and larger are equipped with 12 pulse or greater inverter sections.
3. VFC(s) for operation of motors less than 30 horsepower are equipped with 6 pulse or greater inverter sections.

B. Design and Rating: Match load type such as fans, blowers, and pumps; and type of connection used between motor and load such as direct or through a power-transmission connection.

C. Output Rating: 3-phase; 6 to 60 Hz, with voltage proportional to frequency throughout voltage range.

D. Unit Operating Requirements:

1. Input ac voltage tolerance of 208 V, plus or minus 5 percent 380 to 500 V, plus or minus 10 percent.
2. Input frequency tolerance of 50/60 Hz, plus or minus 6 percent.
3. Minimum Efficiency: 96 percent at 60 Hz, full load.
4. Minimum Displacement Primary-Side Power Factor: 96 percent.
5. Overload Capability: 1.1 times the base load current for 60 seconds; 2.0 times the base load current for 3 seconds.

6. Starting Torque: 100 percent of rated torque or as indicated.

7. Speed Regulation: Plus or minus 1 percent.

E. Isolated control interface to allow controller to follow control signal over an 11:1 speed range.

F. Internal Adjustability Capabilities:

1. Minimum Speed: 5 to 25 percent of maximum rpm.

2. Maximum Speed: 80 to 100 percent of maximum rpm.

3. Acceleration: 2 to a minimum of 22 seconds.

4. Deceleration: 2 to a minimum of 22 seconds.

5. Current Limit: 50 to a minimum of 110 percent of maximum rating.

G. Self-Protection and Reliability Features:

1. Input transient protection by means of surge suppressors.

2. Under- and overvoltage trips; inverter overtemperature, overload, and overcurrent trips.

3. Motor Overload Relay: Adjustable and capable of NEMA ICS 2, Class 20 performance.

4. Skip frequencies: Drive is arranged to skip a minimum of 3 field adjustable frequencies where the controller-motor-load combination operates at a natural resonant frequency of the combination. Each is adjustable with a selectable bandwidth.

5. Instantaneous line-to-line and line-to-ground overcurrent trips.

6. Loss-of-phase protection.

7. Reverse-phase protection.

8. Short-circuit protection.

9. Motor over-temperature fault.

10. Control circuit (120 volts) for interlocking with dry contacts in load side motor disconnect to disable start-up attempts with system open.

11. Snubber networks to project against malfunction due to system voltage transients.

H. Multiple-Motor Capability: Controller suitable for service to multiple motors and having a separate overload relay and protection for each controlled motor. Overload relay shall shut off controller and motors served by it when overload relay is tripped.

I. Automatic Reset/Restart: Attempts three restarts after controller fault or on return of power after an interruption and before shutting down for manual reset or fault correction. Attempts unlimited restarts after controller fault or on return of power after an interruption where serving motors used for smoke control systems, with no manual intervention required. Bidirectional autospeed search shall be capable of starting into rotating loads spinning in either direction and returning motor to set speed in proper direction, without damage to controller, motor, or load.

J. Power-Interruption Protection: To prevent motor from re-energizing after a power interruption until motor has stopped.

K. Torque Boost: Automatically varies starting and continuous torque to at least 1.5 times the minimum torque to ensure high-starting torque and increased torque at slow speeds.

L. Motor Temperature Compensation at Slow Speeds: Adjustable current fall-back based on output frequency for temperature protection of self-cooled, fan-ventilated motors at slow speeds.

M. Decelerating Energy Absorption: Means of absorbing energy released by decelerating motor (and its driven load) without damage to VFC, motor, or load.

N. Input Line Conditioning: Line reactors (5 percent) on 6 pulse VFCs to reduce harmonics produced by the VFC's.

1. Protect each VFC against injurious overheating at its full load rating.

2. Line reactors are incorporated as an integral part of the controller equipment in a single cabinet. Include all required field wiring.

O. DC Bus choke: For harmonic distortion reduction.

P. VFC Output Filtering: The variable frequency controllers are suitable for use with standard NEMA Design B motors having a service factor of 1.15 without producing any injurious "ringing" over-voltages as the motor terminals. Incorporate L-C filters (and/or other items) in the output of the drive as required to prevent such over voltages based on the circuit length from VFC to motor. Provide written certification of the suitability of the VFC for use with "standard motors."

Q. All VFD's shall include EMI/RFI filters. The onboard filters shall allow the VFD assembly to be CE Marked and the VFD shall meet product standard EN 61800-3 for the First Environment restricted level (Category C2) with up to 100 feet of motor cable. Second environment (Category C3, C4) is not acceptable, no Exceptions. Certified test reports shall be provided with the submittals confirming compliance to EN 61800-3, First Environment (C2).

R. The VFD shall be a redundant package consisting of two 6 pulse variable frequency drives factory packaged in a single NEMA 12 enclosure to provide automatic transfer and redundant control of one motor. The redundant drive package shall include a single input circuit breaker, a lockable service switch using an NEC approved isolation device on the input to each drive, separate input drive isolation fuses, exclusive to each drive, to protect the redundant drive package from a fault of either drive, an output contactor for each VFD and class 10/20/30 overload protection for the motor. Each VFD shall have internal 5% impedance reactors to reduce the harmonics to the power line and to add protection from AC line transients. The 5% impedance may be from dual (positive and negative DC bus) reactors, or 5% AC line reactors. VFD's with only one DC reactor shall also have an AC line reactor. VFD's with only one choke, fixed choke or linear chokes are not acceptable. The redundant drive package shall monitor drive and motor faults on start-up and during operation. If the operating drive registers a fault then the package shall isolate that drive and independently switch to the second drive without any external controls, monitoring, hardware, relays, etc. The redundant drive package shall require only one set of control signals for proper operation including speed, feedback, fault, safeties and smoke override.

S. The VFD shall include a motor flux optimization circuit that will automatically reduce applied motor voltage to the motor to optimize energy consumption and reduce audible motor noise. The VFD shall have selectable software for optimization of motor noise, energy consumption, and motor speed control. The VFD shall include a carrier frequency control circuit that reduces the carrier frequency based on actual VFD temperature that allows higher carrier frequency settings without de-rating the VFD.

T. Status Lights: Door-mounted LED indicators shall indicate the following conditions:

1. Power on.
2. Run.
3. Overvoltage.
4. Line fault.
5. Overcurrent.
6. External fault.

U. Panel-Mounted Operator Station: Start-stop and auto-manual selector switches with manual speed control potentiometer and elapsed time meter.

V. Indicating Devices: Meters or digital readout devices and selector switch, mounted flush in controller door and connected to indicate the following controller parameters:

1. Output frequency (Hz).
2. Motor speed (rpm).
3. Motor status (running, stop, fault).

4. Motor current (amperes).

5. Motor torque (percent).

6. Fault or alarming status (code).

7. PID feedback signal (percent).

8. DC-link voltage (VDC).

9. Set-point frequency (Hz).

10. Motor output voltage (V).

W. Control Signal Interface:

1. Electric Input Signal Interface: A minimum of 2 analog inputs (0 to 10 V and 0/4-20 mA) and 6 programmable digital inputs.

2. Pneumatic Input Signal Interface: 3 to 15 psig (20 to 104 kPa).

3. Remote Signal Inputs: Capability to accept any of the following speed-setting input signals from the BMS or other control systems:

   a. 0 to 10-V dc.

   b. 0-20 or 4-20 mA.

   c. Potentiometer using up/down digital inputs.

   d. Fixed frequencies using digital inputs.

   e. RS485.

   f. Keypad display for local hand operation.

4. Output Signal Interface:

   a. A minimum of 2 analog output signals (0/4-20 mA), which can be programmed to any of the following:

      (1) Output frequency (Hz).

      (2) Output current (load).

      (3) DC-link voltage (VDC).

      (4) Motor torque (percent).

(5) Motor speed (rpm).

(6) Set-point frequency (Hz).

5. Remote Indication Interface: A minimum of 2 dry circuit relay outputs (120-V ac, 1 A) for remote indication of each of the following:

   a. Motor running.

   b. Set-point speed reached.

   c. Fault and warning indication (overtemperature or overcurrent).

   d. PID high- or low-speed limits reached.

6. Damper Control Interface: Closes a dry contact upon a start command to open associated dampers before the motor is allowed to operate in drive or bypass mode. Input to accept damper limit switch contact closure to allow the motor to operate.

7. Safety Control Interface: Input to accept safety device dry contact closure to stop motor operation in drive and bypass mode.

8. Over-ride Control Interface: Input to accept control system dry contact closure to start motor operation in drive mode at variable speed and in bypass mode.

X. Communications: Provide an RS485 interface allowing VFC to be used with an external system within a multidrop LAN configuration. Interface shall allow all parameter settings of VFC to be programmed via BMS control, and all output signals and alarms of VFC to be monitored by BMS. Provide capability for VFC to retain settings programmed via BMS control within the nonvolatile memory.

Y. Manual Bypass: Magnetic contactor arranged to safely transfer motor between controller output and bypass controller circuit when motor is at zero speed. Controller-off-bypass selector switch sets mode, and indicator lights give indication of mode selected. Unit shall be capable of stable operation (starting, stopping, and running), with motor completely disconnected from controller (no load).

Z. Bypass Controller: NEMA ICS 2, full-voltage, nonreversing enclosed controller with across-the-line starting capability in manual-bypass mode. Provide motor overload protection under both modes of operation with control logic that allows common start-stop capability in either mode. Bypass controller for motors 75 HP and larger (10 HP and larger where supplied from an emergency generator) are provided with solid-state reduced voltage controller (soft-start) in series with the bypass contactor, as specified in Division 23 Section 23 09 95 “Enclosed Controllers”.

AA. Integral Disconnecting Means: NEMA KS 1, nonfusible switch with lockable handle.

BB. Isolating Switch: Non-load-break switch arranged to isolate VFC and permit safe troubleshooting and testing, both energized and de-energized, while motor is operating in bypass mode.

2.3 ENCLOSURES

A. NEMA 250, Type 1 enclosure unless otherwise indicated.

B. NEMA 250, Type 4 enclosure where located outdoors. Heater and air-cooled cooling unit to maintain temperature within housing as required for proper operation for outdoor temperatures within the range of the ASHRAE 99.6 percent winter design temperature and ASHRAE 0.4 percent summer design temperature for the area, plus solar load. Single point electrical connection for controller and enclosure.

2.4 ACCESSORIES

A. Devices shall be factory installed in controller enclosure, unless otherwise indicated.

B. Push-Button Stations, Pilot Lights, and Selector Switches: NEMA ICS 2, heavy-duty type.

C. Control Relays: Auxiliary and adjustable time-delay relays.

D. Standard Displays:

1. Output frequency (Hz).
2. Set-point frequency (Hz).
3. Motor current (amperes).
4. DC-link voltage (VDC).
5. Motor torque (percent).
6. Motor speed (rpm).
7. Motor output voltage (V).

2.5 FACTORY FINISHES

A. Manufacturer's standard prime-coat finish ready for field painting.

B. Finish: Manufacturer's standard paint applied to factory-assembled and -tested VFCs before shipping.

PART 3 - EXECUTION

3.1 APPLICATION

A. Select features of each VFC to coordinate with ratings and characteristics of supply circuit and motor; required control sequence; and duty cycle of motor, drive and load.

B. Select rating of controllers to suit motor controlled.

3.2 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to perform the following:

1. Inspect variable frequency controllers, wiring, components, connections, and equipment installation. Test and adjust variable frequency controllers, components, and equipment in accordance with NETA ATS, Sections 7.5, 7.6, and 7.16. Certify compliance with test parameter.

2. Operate variable frequency controller throughout its full frequency range and program to skip frequencies where the controller-motor-load combination operates at a natural resonant frequency of the combination.

3. Complete installation and startup checks according to manufacturer's written instructions.

4. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

B. Test Reports: Prepare a written report to record the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

4. Report results in writing.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to instruct maintenance personnel to adjust, operate, and maintain variable frequency controllers.

3.4 INSTALLATION

A. General: Install VFCs in accordance with manufacturer’s written instructions.

B. See Division 26 Section 26 05 00 "Common Work Results for Electrical" for additional general installation requirements.

C. Location: Locate controllers as indicated and within site of motors controlled. Where controller is not located within sight of the motor controlled (as defined in the National Electrical Code), provide a nonfusible disconnect switch to serve as the local motor disconnect. Switch includes additional dry contact to lock out operation of VFC when disconnect is open.

D. Mounting: For control equipment at walls, bolt units to wall or mount on light-weight structural steel channels bolted to the wall. For controllers not at walls, provide freestanding racks fabricated of structural steel members and light-weight slotted structural steel channels.

E. Where VFC consists of more than a single cabinet, provide all required interwiring between cabinets.

F. Controller Fuses: Install fuses in each fusible switch. Comply with requirements in Division 26 Section 23 34 00 "Fuses."

G. Anchor each VFC assembly to steel-channel sills arranged and sized according to manufacturer's written instructions. Attach by bolting. Level and grout sills flush with mounting surface.

3.5 IDENTIFICATION

A. Identify VFCs, components, and control wiring according to Division 26 Section 26 05 53 "Electrical Identification."

B. Operating Instructions: Frame printed operating instructions for VFCs, including control sequences and emergency procedures. Fabricate frame of finished metal, and cover instructions with clear acrylic plastic. Mount on front of VFC units.

3.6 CONTROL WIRING INSTALLATION

A. Install wiring between VFCs and terminal cabinets according to Division Section 23 09 95 "Enclosed Controllers."

B. Bundle, train, and support wiring in enclosures.

C. Connect hand-off-automatic switch and other automatic-control devices where available.

1. Connect selector switches to bypass only manual- and automatic-control devices that have no safety functions when switch is in hand position.

2. Connect selector switches with control circuit in both hand and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

D. Install control wiring between VFCs and interlock contact in motor disconnect switch and connect to lock-out VFC until switch has been re-closed to permit restart.

3.7 CONNECTIONS

A. Conduit installation requirements are specified in Division 26 Sections. Drawings indicate general arrangement of conduit, fittings, and specialties.

B. Ground equipment according to Division 26.

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to perform the following:

1. Inspect variable frequency controllers, wiring, components, connections, and equipment installation. Test and adjust variable frequency controllers, components, and equipment in accordance with NETA ATS, Sections 7.5, 7.6, and 7.16. Certify compliance with test parameter.

3.9 VARIABLE FREQUENCY CONTROLLERS

A. Operate variable frequency controller throughout its full frequency range and program to skip frequencies where the controller-motor-load combination operates at a natural resonant frequency of the combination.

B. Complete installation and startup checks according to manufacturer's written instructions.

C. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Prepare for acceptance tests as follows:

1. Test insulation resistance for each connecting supply, feeder, and control circuit.

2. Test continuity of each circuit.

E. Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements in Division 26 Sections.

F. Test Reports: Prepare a written report to record the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

4. Report results in writing.

3.10 ADJUSTING

A. Set field-adjustable switches.

3.11 DEMONSTRATION

A. Engage a factory authorized service representative to instruct maintenance personnel to adjust, operate, and maintain variable frequency controllers.

3.12 CLEANING

A. Clean VFCs internally, on completion of installation, according to manufacturer's written instructions. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

3.13 CONTROL WIRING

A. Provide control wiring as specified in Division 23 Section 23 09 95 “Enclosed Controllers”.

3.14 WARRANTY

A. Provide 2 manufacturer's year site parts and labor warranty after start up.

END OF SECTION 23 05 15

SECTION 23 05 47
VIBRATION ISOLATION (NON SEISMIC)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Section 23 05 00 - Common Work Results for HVAC

B. Section 23 05 50 - Basic Mechanical Materials and Methods.

1.3 SECTION INCLUDES

A. Vibration control.

B. Description of Work

1. It is the objective of this specification to provide the necessary design requirements for the control of excessive noise and vibration in buildings due to the operation of machinery or equipment, and/or due to interconnected piping, ductwork or conduit.

2. Provide vibration isolation systems, complete as shown and specified per Contract Documents.

3. The work of this section includes, but is not limited to, the following:

a. Vibration isolation elements for piping and equipment;

b. Equipment isolation bases;

c. Piping flexible connections.

1.4 REFERENCES

A. ASHRAE.

1.5 QUALITY ASSURANCE

A. Applicator: Products provided by company specializing in vibration isolation with three years minimum experience.

B. All vibration isolation devices shall be the product of a single manufacturer. Products of other manufacturers are acceptable, provided that their systems comply with the design intent for system performance, static deflection and structural design of the base manufacturer.

C. The following are approved manufacturers, provided their systems strictly comply with the design intent for performance, deflection and structural capacity of this specification.

1.	Mason Industries, Inc.	Hauppauge, NY
2.	Vibration Mountings & Controls	Bloomingdale, NJ
3.	Kinetics Company,	Dunlin, OH
4.	Korfund Dynamics Corp.,	Bloomingdale, NJ
5.	Vibration Eliminator Co., Inc.,	Long Island City, NY
6.	Amber Booth,	Houston, TX
7.	Or approved equal.	

D. Vibration isolation firms having a minimum of three (3) years experience in designing and installing vibration isolation systems shall be qualified to provide the materials and installation required by this section.

1.6 SUBMITTALS

A. Submit product data under provisions of General Conditions.

B. Include product description, list of materials for each service, and locations.

C. Submit manufacturer's installation instructions under provisions of General Conditions.

D. Vibration isolation equipment submittal drawings shall include the following information:

1. Isolation mounting deflections.

2. Spring diameters, compressed spring heights at rated load; solid spring heights, where steel spring isolation mountings are used.

3. Equipment operating speed.

E. In addition to the requirements on the submittal material shall include thirteen (13) copies of descriptive data for all products and materials including, but not limited to, the following:

1. Descriptive Data:

a. Catalog cuts and data sheets on specific vibration isolators to be utilized showing compliance with the specifications.

b. An itemized list showing the items of equipment or piping to be isolated, the isolator type and model number selected, isolator loading and deflection.

2. Shop Drawings:

a. Drawings showing equipment base constructions for each machine, including dimensions, structural member sizes and support point locations.

b. Drawings showing methods of suspension, support guides for piping and ductwork.

c. Drawings showing methods for isolation of pipes and ductwork piercing walls and slabs.

d. Concrete and steel details for bases, including anchor bolt locations.

PART 2 - PRODUCTS

2.1 MOUNTING OF CENTRIFUGAL PUMPS (3 HP or less)

A. Pumps 3 HP or less shall be bolted and grouted to rubber-inshear supported reinforced concrete inertia blocks that are a minimum of 6 inches thick. Rubber-in-shear isolators shall provide a minimum static deflection of 3/8 inch and shall be protected against corrosion. Mountings shall be as described for TYPE IV.

2.2 MOUNTING OF FLOOR MOUNTED PACKAGED DX UNITS AND CONDENSER UNITS.

A. Each such equipment shall be resiliently supported by means of mountings provided between the structural or concrete pier support and the equipment. The mountings shall provide a minimum static deflection of 1 inch. Mountings shall be one of the following, or approved equal:

1. Type SLR - M.I.I.

2. Type AWR - V.M.C.I.

3. Type KW - V.E.C.

2.3 PIPING GUIDES

A. Type ADA Mason Industries,

B. Type VE-SG Vibration Eliminator Co.,

C. VMC Type 8,

D. or approved equal.

2.4 ACOUSTICAL ANCHORS

A. Type VPA Mason industries,

B. Type VE-A Vibration Eliminator Co.,

C. VMC Type AG,

D. or approval equal.

2.5 PIPING SUPPORTS

A. All water piping hanger rod isolators shall be one of the following or approved equal:

1. Type PC30 - M.I.I.
2. Type VSHL - V.M.C.I.
3. Type TK - V.E.C.
4. Type VXPM - K.D.C.

B. Floor supported water piping shall be mounted on one of the following or approved equal:

1. Type SLR - M.I.I.
2. Type AWR - V.M.C.I.
3. Type KW - V.E.C.

C. Floor mounted strainer and storage tank shall be mounted on one of the following or approved equal:

1. Type SLR - M.I.I.
2. Type AWR - V.M.C.I.
3. Type KW - V.E.C.

D. Mountings for the support of ceiling suspended steam and condensate piping shall be one of the following or approved equal:

1. Type RHD - V.M.C.I.
2. Type HD - M.I.I.
3. Type CD - V.E.C.

E. Floor supported steam and condensate piping including steam pressure reducing stations shall be mounted on one of the following or approved equal:

1. Type ND - M.I.I.
2. Type RD - V.M.C.I.
3. Type 368SD - V.E.C.

PART 3 - EXECUTION

3.1 GENERAL

A. All equipment, piping, etc. shall be mounted on or suspended from approved foundations and supports, all as specified herein, or as shown on the drawings.

B. All concrete foundations and supports (and required reinforcing and forms) will be furnished and installed by the contractor. The contractor shall furnish shop drawings showing adequate concrete reinforcing steel details and templates for all concrete foundations and supports, and all required hanger bolts and other appurtenances necessary for the proper installation of his equipment. The contractor will complete all concrete work, all such work shall be shown in detail on the shop drawings, prepared the contractor trade which drawings shall be submitted showing the complete details of all foundations including necessary concrete and steel work, vibration isolation devices, etc.

C. All floor-mounted equipment shall be erected on 4" high concrete pads over the complete floor area of the equipment, unless specified to the contrary herein. Wherever hereinafter vibration eliminating devices and/or concrete inertia blocks are specified, these items shall, in all cases, be in turn mounted upon 4" high concrete pads unless specified to the contrary herein.

D. The vibration isolation systems shall be guaranteed to have the deflection indicated on the schedule on the drawings. Mounting sizes shall be determined by the mounting manufacturer, and the sizes shall be installed in accordance with the manufacturer's instructions.

E. The installed vibration isolation system for each floor or ceiling supported equipment shall have a maximum lateral motion under equipment start-up or shut down conditions of 1/4 inch. Motions in excess shall be restrained by approved spring type mountings.

F. All mounting systems 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.

G. Where steel spring isolation systems are described in the 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 spring remain parallel during and after the spring installation. All isolators shall operate in the linear portion of their load versus deflection curve and have 50% excess capacity without becoming coil bound.

3.2 SUPPORT OF PIPING

A. The following water piping shall be resiliently supported:

1. All piping in equipment room.

2. Piping outside of equipment room within 50 feet or 100 diameters whichever is greater of connected rotating equipment.

3. All piping where exposed on roof.

4. Boiler breeching, emergency generator exhaust piping.

B. Resilient diagonal mountings or other approved devices shall be provided as required to limit piping motion due to equipment startup or shut down, to a maximum of 1/8 inch.

C. Water piping hanger rod isolators shall contain a steel spring in series with a 1/4 inch acoustical neoprene pad within a steel box retainer. The hanger rod isolator assembly shall be rigidly supported from the building structure. The installed hanger rod supported from the spring sub assembly shall not contact the steel box retainer and clearances in the isolator design shall be capable of accepting a 15 misalignment in any direction from the vertical.

D. The steel spring element of the assembly shall be designed to have a minimum surge frequency of 340 HZ and a minimum deflection of 3/4 inch.

E. Hanger rod isolators for steam and condensate piping including steam pressure reducing valve stations shall be supported by meals of neoprene-in-shear mountings providing a minimum static deflection of ½ inch.

F. Where supplementary steel is required to support piping, the supplementary steel shall be sized so that maximum deflection between supports does not exceed 0.08 inches and shall be resiliently supported from the building structure with mountings as described above. Supported piping from the supplementary steel shall be rigidly suspended or supported.

G. Precompressed type hanger rod isolators shall be provided for all water piping greater than 12 inch diameter and all supplementary steel supports. The precompression shall be factory set at 75% of rated deflection.

H. Where isolated water piping 8" and larger is supported directly below exposed steel beams, attachment to the beam shall be made by means of welded channel beam attachments located directly under the web of the beam. For piping 6" and smaller beam clamps may be used in lieu of welding subject to approval of beam clamp selection.

3.3 PIPING GUIDES

A. Steel guides shall be welded to the pipe at a maximum spacing of 90°. The outside diameter of the opposing guide bars shall be smaller than the inside diameter of the pipe riser clamp in accordance with standard field construction practice. Each end of the pipe guide shall be rigidly attached to an all directional pipe anchor isolation mounting which in turn, shall be rigidly fastened to the steel framing within the shaft. See Pipe Guide Detail on Drawings.

B. The all directional pipe anchor isolation mountings shall consist of a telescoping arrangement of two sizes of steel tubing separated by a minimum of ½ inch thick heavy duty neoprene and canvas duck isolation pad. Vertical restraints shall be provided by similar material arranged to prevent vertical travel in either direction. The allowable load on the isolation material shall not exceed 500 psi.

C. Mountings shall be type ADA Mason Industries, Type VE-SG Vibration Eliminator Co., VMC Type 8, or approved equal.

D. Low temperature piping guides shall be constructed with a 360 10 gauge metal sleeve around the piping. The thermal insulation requirements for the piping shall be provided between the piping and the sleeve. Heavy duty neoprene and canvas duck isolation pad of thickness equal to thermal insulation requirements shall space the metal sleeve away from the piping with urethane or other suitable thermal insulation provided in the voids between the pipe-sleeve and isolation pan material. The metal sleeve outside diameter shall be smaller than the pipe riser clamp inside diameter in accordance with standard field construction practice. The pipe riser clamp shall be rigidly attached to the steel framing within the shaft.

3.4 ANCHORS

A. The pipe riser clamp at anchor points, shall be welded to the pipe and to pairs of vertical acoustical pipe anchor mountings which in turn, shall be rigidly fastened to the steel framing in the pipe shaft.

B. Acoustical pipe anchor mountings shall be type VPA Mason industries, Type VE-A Vibration Eliminator Co., VMC Type AG, or approved equal.

3.5 SUPPORTS

A. Piping supports within shafts shall be provided with suitable bearing plates and two layers of 1/4 inch thick ribbed or waffled neoprene pad loaded for 50 psi maximum. The isolation pads shall be separated with 1/4 inch steel plate.

B. The isolation pads shall be one of the following or approved equal:

1. Type W - M.I.I.
2. Type Shearflex - V.M.C.I.
3. Type 200N - V.E.C.

C. Piping isolation supports at the base of risers shall be two layers of ½ inch thick heavy duty neoprene and canvas duck isolation pad separated by 1/4 inch thick steel plate. Suitable bearing plates sized to provide a pad loading of 500 psi maximum shall be provided. The stanchion between the pipe and isolation support shall be welded to the pipe and welded or bolted to the isolation support. The isolation support shall be bolted to the floor slab with resilient sleeves and washers.

D. All pipe support resilient materials shall be HL Mason Industries, Inc., Anvil, Cooper Industries, or approved equal.

3.6 SCHEDULE

A. See drawings.

END OF SECTION 23 05 47

SECTION 23 05 50
BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS.

A. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 09 90 00, Painting and Coating.

2. Section 23 05 00, Common Work Results for HVAC.

3. Division 26, Electrical

1.3 SECTION INCLUDES

A. This Section includes the following basic mechanical materials and methods to complement other Division 23 Sections.

1. Piping materials and installation instructions common to most piping systems.

2. Delivery, Storage and Handling

3. Protection and Cleaning

4. Fire and smoke Detection

5. Sequencing and scheduling

6. Dielectric Fittings.

7. Pipe and Pipe Fittings.

8. Joining Materials

9. Piping Specialties

10. Labeling and identifying mechanical systems and equipment is specified in Division 23.

11. Drive Guards

12. Electrical Motors, Motor Controls and Wiring

13. Firestopping

14. Tools and lubricants

15. Dampers - General

16. Damper Terminal Strips

17. Piping Systems - Common Requirements.

18. Pressure Testing - All Piping Systems.

19. Equipment Installation - Common Requirements.

20. Labeling and Identifying

21. Painting and finishing.

22. Pans and Drains over Electrical Equipment.

23. Erection of Metal Supports and Anchorage

24. Welding procedure.

B. Pipe and pipe fitting materials are specified in piping system Sections.

1.4 QUALITY ASSURANCE

A. Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code--Steel."

B. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions of ASME B31 Series "Code for Pressure Piping."

2. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current.

C. Products Criteria:

1. All equipment furnished as part of the work shall comply with New York City Energy Code 2016. Provide certification from the equipment suppliers for all energy-consuming equipment that the equipment fully complies with these codes. Equipment submissions will not be accepted for review unless accompanied by such certification in writing.

2. All equipment and materials shall be new and without blemish or defect.

3. New equipment and materials shall be Underwriters Laboratories, Inc. (U.L.) labeled and/or listed where specifically called for, or where normally subject to such U.L. labeling and/or listing services.

4. All equipment and materials shall be free of asbestos.

5. Electrical equipment and materials shall be products which will meet with the acceptance of the agency inspecting the electrical work. Where such acceptance is contingent upon having the products examined, tested and certified by Underwriters or other recognized testing laboratory, the product shall be examined, tested and certified.. Where no specific indication as to the type or quality of materials or equipment is indicated, a first class standard article shall be furnished.

6. All equipment of one type (such as fans, pumps, coils, etc.), shall be the products of one Manufacturer.

7. Substituted equipment or optional equipment where permitted and approved, must conform to space requirements. Any substituted equipment that cannot meet space requirements, whether approved or not, shall be replaced at the Contractor's expense. Any modifications of related systems as a result of substitutions shall be made at the Contractor's expense.

8. Note that the approval of shop drawings, or other information submitted in accordance with the requirements hereinbefore specified, does not assure that the Commissioner attests to the dimensional accuracy or dimensional suitability of the material or equipment involved or the ability of the material or equipment involved or the mechanical performance of equipment. Approval of Shop Drawings does not invalidate the plans and specifications if in conflict, unless a letter requesting such change is submitted and approved on the Commissioner letterhead.

9. Substitutions of Mechanical Equipment for that shown on the schedules or designated by model number in the specifications will not be considered if the item is not a regular cataloged item shown in the current catalog of the manufacturer.

D. Manufacturer's Recommendations: Where installation procedures of any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Deliver, store and handle all materials to keep clean and protected from damage.

C. Store products in shipping containers and maintain in place until installation.

D. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

E. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

F. Protect flanges, fittings, and piping specialties from moisture and dirt.

G. Protect stored plastic pipes from direct sunlight. Support to prevent sagging and bending.

H. Protect equipment and other materials from damage after installed from construction debris and other damage.

1.6 PROTECTION AND CLEANING

A. It shall be the contractor responsibility to store his materials in a manner that will maintain an orderly clean appearance. If stored on-site in open or unprotected areas, all equipment and material shall be kept off the ground by means of pallets or racks, and covered with tarpaulins.

B. The inlet and discharge openings of all heat pump, VAV Box, AC unit, induction, and other terminal units shall be kept covered until all local plastering, parging, etc. is completed, and the units are ready to run.

C. Equipment and material if left in the open and damaged shall be replaced, repainted, or otherwise refurbished at the discretion of the Commissioner. Equipment and material is subject to rejection and replacement if in the opinion of the Commissioner, or in the opinion of the manufacturer's engineering department, the equipment has deteriorated or been damaged to the extent that its immediate use is questionable, or that its normal life expectancy has been curtailed.

D. During the erection protect all ductwork, duct lining, insulation, piping, and equipment from damage and dirt. Cap the open top and bottom of all ductwork and piping installed.

E. After completion of project, clean the exterior surface of all equipment included in this division of work including, but not limited to, concrete residue.

1.7 FLUSHING AND CLEANING OF PIPING

A. All piping systems shall be thoroughly flushed out with the approved cleaning chemicals to remove pipe dope, slushing compounds, cutting oils, and other loose extraneous materials. This also includes any piping systems which are not listed as requiring water treatment.

B. Develop plan for flushing and cleaning piping. Submit plan for approval prior to completion of piping. Provide all temporary and permanent piping, equipment, materials necessary to complete flushing and cleaning.

C. Prior to flushing, temporarily remove, isolate or bypass dirt sensitive equipment and devices, including the following:

1. Automatic flow control valves

2. Heating and cooling coils

3. Flow measuring devices

4. Reinstall after flushing is complete.

D. Prior to flushing, install fine mesh construction strainers at inlet to all equipment with connections 2-1/2" and larger. Install fine mesh construction element in permanent strainers. During flushing and cleaning, remove and clean strainers periodically. At completion of final flush, clean permanent strainers, remove construction strainers.

E. Flush all piping with cold water for a minimum of 6 feet per second for one hour, until water runs clear. Water supply shall be equivalent to piping to be flushed. Drain all low points.

F. Circulate flush water and clean strainers prior to installing cleaning chemicals. Provide cleaning chemicals, under the direction of the chemical supplier. Following flushing, install cleaning chemicals and circulate through the entire system for a minimum of one hour, or as directed by chemical supplier. Take water sample for Commissioner’s use. Drain system, including all low points. Flush, drain and fill system, circulate for one hour, sample for owner's use. Drain, flush, fill, circulate and sample until system is free of cleaning chemicals, as indicated by analysis of samples.

G. Provide temporary pumps and piping to chemically clean piping at a minimum velocity of 6 fps without using the system pumps.

H. The cleaning chemicals shall be added by the Contractor. The chemical supplier shall verify that the chemicals are compatible with all the materials in the systems. The chemical supplier shall instruct as to the proper feed rates, shall check that the cleaning solution is actually in each system, shall instruct the Contractor as to when to flush the system and shall check each system following flushing to ensure all cleaning chemicals have been removed from each system.

I. A certificate of cleaning shall be provided by the cleaning chemical supplier to the Commissioner.

1.8 FIRE AND SMOKE DETECTION

A. Fire and smoke detection system will be provided and installed by the Contractor. The Contractor will provide suitable openings (as recommended by the Smoke Detection System Manufacturer) Refer to Section 28 31 00 "Fire-Alarm System" in sheet metal for sensing elements.

B. The Contractor will provide bracing for smoke detection sampling tubes which exceed 48" in length.

1.9 SEQUENCING AND SCHEDULING

A. Coordinate mechanical equipment installation with other building components.

B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.

C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

E. Coordinate connection of electrical services.

F. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services.

G. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 DIELECTRIC FITTINGS

A. For all systems, provide dielectric fittings to isolate joined dissimilar materials to prevent galvanic action and stop corrosion. Fittings shall be of the non reducing type, which shall be suitable for the system fluid, pressure, and temperature and shall not restrict the flow.

B. For factory fabricated equipment, manufacturer shall submit method of compliance or exceptions (if applicable) in writing as part of the shop drawings submission for review by Commissioner.

C. It is the intent of this section that all system components (equipment connections, piping, etc.). Whether they are field installed or factory fabricated shall comply with paragraph A above.

D. Dielectric Fittings: Assembly or fitting, non-reducing type, having insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion.

E. Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.

F. Insulating Material: Suitable for system fluid, pressure, and temperature, does not restrict flow.

G. Dielectric Unions: Factory-fabricated, union assembly for 250-psig (1725kPa) minimum working pressure at a 180 deg F (82 deg C) temperature.

H. Dielectric Flanges: Factory-fabricated, companion-flange assembly for 150- or 300-psig (1035kPa or 2070kPa) minimum pressure to suit system pressures.

I. Dielectric-Flange Insulation Kits: Field-assembled, companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

J. Dielectric Couplings: Galvanized-steel coupling, having inert and noncorrosive, thermoplastic lining, with threaded ends and 300-psig (2070kPa) minimum working pressure at 225 deg F (107 deg C) temperature.

K. Dielectric Nipples: Electroplated steel nipple, having inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved end types and 300-psig (2070kPa) working pressure at 225 deg F (107 deg C) temperature.

2.2 IDENTIFYING DEVICES AND LABELS

A. General: Manufacturer's standard products of categories and types required for each application as referenced in other Division 23 Sections. Where more than one type is specified for listed application, selection is Installer's option, but provide single selection for each product category.

B. Equipment Nameplates: Metal nameplate with operational data engraved or stamped, permanently fastened to equipment.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.

2. Location: An accessible and visible location.

C. Stencils: Standard stencils, prepared for required applications with letter sizes conforming to recommendations of ASME A13.1 for piping and similar applications, but not less than 1-1/4-inch (30mm) -high letters for ductwork and not less than 3/4-inch (19mm) -high letters for access door signs and similar operational instructions.

1. Material: Fiberboard.

2. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

3. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ASME A13.1 for colors.

D. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, conforming to ASME A13.1.

E. Plastic Duct Markers: Manufacturer's standard laminated plastic, color coded duct markers. Conform to following color code:

1. Green: Cold air.

2. Yellow: Hot air.

3. Yellow/Green: Supply air.

4. Blue: Exhaust, outside, return, and mixed air.

5. For hazardous exhausts, use colors and designs recommended by ASME A13.1.

6. Nomenclature: Match terminology on schedules as closely as possible.

F. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white (letter color) melamine subcore, except when other colors are indicated.

1. Fabricate in sizes required for message.

2. Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.

3. Punch for mechanical fastening.

4. Thickness: 1/8 inch (3 mm), except as otherwise indicated.

5. Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.

G. Plastic Equipment Markers: Laminated-plastic, color-coded equipment markers. Conform to following color code:

1. Green: Cooling equipment and components.

2. Yellow: Heating equipment and components.

3. Yellow/Green: Combination cooling and heating equipment and components.

4. Brown: Energy reclamation equipment and components.

5. Blue: Equipment and components that do not meet any of the above criteria.

6. For hazardous equipment, use colors and designs recommended by ASME A13.1.

7. Nomenclature: Match terminology on schedules as closely as possible.

8. Lettering Size: Minimum 1/4-inch (6mm) -high lettering for name of unit where viewing distance is less than 2 feet (0.6 m), ½-inch (13mm) -high for distances up to 6 feet (1.8 m), and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.

9. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.

10. Size: Approximately 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; and 4-1/2 by 6 inches (115 by 150 mm) for equipment.

H. Valves

1. Attach a 2" round brass tag stamped with designating numbers 1" high filled in with black enamel to each valve, except those on fixtures.

2. Securely fasten valve tag to valve spindle or handle with a brass chain.

3. Provide approved ceiling tile markers in areas where removable ceilings occur to indicate location of valves or other devices.

I. Motor Control Identification

1. Mount black lamacoid nameplates on each motor controller identifying primary control function and individual position indication such as Pump No. 1, etc. Nameplates shall be cut through to white background and have beveled edges. Mount with chromium plated acorn head screws.

J. Schedules and Charts

1. Furnish to Commissioner three (3) complete framed plastic laminated valve tag schedules. Schedule shall indicate tag number, valve location by floor and nearest column number, valve size and service controlled.

K. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

1. Multiple Systems: Where multiple systems of same generic name are indicated, provide identification that indicates individual system number as well as service such as "Boiler No. 3," "Air Supply No. 1H," or "Standpipe F12."

2.3 GROUT

A. Nonshrink, Nonmetallic Grout: ASTM C 1107, Grade B.

1. Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.

2. Design Mix: 5000-psi (34.50MPa), 28-day compressive strength.

3. Packaging: Premixed and factory-packaged.

2.4 DRIVE GUARDS

A. For all machinery and equipment (whether factory fabricated or field installed) provide OSHA approved guards for belts, chains, couplings, pulleys, sheaves, shafts, gears and other moving parts regardless of height above the floor.

B. Materials: Sheet steel, cast iron, expanded metal or heavy gauge wire mesh rigidly secured so as to be removable without disassembling pipe, duct, or electrical connections to equipment.

C. Access for Speed Measurement: One inch diameter hole at each shaft center.

2.5 FIRE-STOPPING

A. Contractor is responsible for firestopping of HVAC work.

B. Firestopping system must be U.L. approved.

C. All spaces between ducts or pipes and their respective sleeves shall be packed full depth with mineral wool, or other equally approved fire resistant material, and compressed firmly in place. Fiberglass shall not be used. Sleeve clearances shall not exceed ½ inch between pipes (or ducts) and sleeves. Use individual sleeves for each pipe or duct. Use escutcheons on both sides of sleeves. This includes spaces between ducts on pipes and their respective sleeves or openings at fan rooms (whether walls are fire rated or not).

2.6 TOOLS AND LUBRICANTS

A. Furnish special tools not readily available commercially, that are required for disassembly or adjustment of equipment and machinery furnished.

B. Lubricants: A minimum of one quart of oil, and one pound of grease, of equipment manufacturer's recommended grade and type, in unopened containers and properly identified as to use for each different application.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS--COMMON REQUIREMENTS

A. Sleeve Application

Sleeve Type Thru Required Fire Rated construction	Sleeve Type Thru Non-Fire Rated Construction	Location	Sleeve Caulking & Packing Type Designation
5	5	Membrane waterproof floor, roof and wall construction	B
5	5	Non membrane waterproof floor, roof and wall construction where flashing is required	A or B
2	1, 2	Interior walls, partitions and floors	B
3 or 4	3 or 4	Exterior walls	A
2	6	Metal deck floors	B
1	1	Precast concrete floor with poured concrete topping. Note: Sleeves to have flat flanges and/or guides which rest on top of pre-cast slab	B

B. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestopping sealant material. Firestopping materials are specified in Division 7 Section "Firestops and Smokeseals."

C. Verify final equipment locations for roughing in.

D. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.

1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

3. Soldered Joints: Construct joints according to AWS "Soldering Manual," Chapter 22 "The Soldering of Pipe and Tube."

4. Brazed Joints: Construct joints according to AWS "Brazing Manual" in the "Pipe and Tube" chapter.

5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter.

6. Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to the "Quality Assurance" Article.

7. Flanged Joints: Align flange surfaces parallel. Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly using torque wrench.

8. Plastic Pipe and Fitting Solvent-Cement Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join pipe and fittings according to the manufacturer cleaning standard.

9. Plastic Pipe and Fitting Heat-Fusion Joints: Prepare pipe and fittings and join with heat-fusion equipment according to manufacturer's printed instructions.

E. Piping Connections: Except as otherwise indicated, make piping connections as specified below.

1. Install unions in piping 2 inches (50 mm) and smaller adjacent to each valve and at final connection to each piece of equipment having a 2-inch (50mm) or smaller threaded pipe connection.

2. Install flanges in piping 2-1/2 inches (65 mm) and larger adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.

3. Wet Piping Systems (Water and Steam): Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

F. All welding elbows shall be long radius elbows ANSI B16.9

G. Where welding is used, fittings shall be Tube Turn, Bonney Forge, Taylor Forge, Ladish, or other approved manufacturer, ANSI B-16.9. Welding end fittings shall have the same bursting pressure as pipe of the same size and schedule. Tee fittings shall be one piece except that weldolets are permitted where branches are at least one pipe size less than the main.

H. All cast iron fittings shall be Stockham, Grinnell, Charlotte, or approved equal.

3.2 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS

A. Install equipment to provide the maximum possible headroom where mounting heights are not indicated.

B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Commissioner.

C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.

D. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.3 LABELING AND IDENTIFYING

A. Equipment: Install engraved plastic laminate sign or equipment marker on or near each major item of mechanical equipment.

1. Lettering Size: Minimum 1/4-inch (6mm) -high lettering for name of unit where viewing distance is less than 2 feet (0.6 m), ½-inch (13mm) -high for distances up to 6 feet (1.8 m), and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.

2. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.

B. Duct Systems: Identify air supply, return, exhaust, intake, and relief ducts with duct markers; or provide stenciled signs and arrows, showing duct system service and direction of flow.

1. Location: In each space where ducts are exposed or concealed by removable ceiling system, locate signs near points where ducts enter into space and at maximum intervals of 50 feet (15 m).

C. Adjusting: Relocate identifying devices which become visually blocked by work of this Division or work by other trades.

D. Valves

1. Attach a 2" round brass tag stamped with designating numbers 1" high filled in with black enamel to each valve, except those on fixtures.

2. Securely fasten valve tag to valve spindle or handle with a brass chain.

3. Provide approved ceiling tile markers in areas where removable ceilings occur to indicate location of valves or other devices.

E. Motor Control Identification

1. Mount black lamacoid nameplates on each motor controller identifying primary control function and individual position indication such as Pump No. 1, etc. Nameplates shall be cut through to white background and have beveled edges. Mount with chromium plated acorn head screws.

F. Schedules and Charts

1. Furnish to the Commissioner three (3) complete framed plastic laminated valve tag schedules. Schedule shall indicate tag number, valve location by floor and nearest column number, valve size and service controlled.

3.4 PAINTING AND FINISHING

A. Refer to Division 9 Section 09 90 00 "Painting and Coating" for field painting requirements.

B. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.5 PANS AND DRAINS OVER ELECTRICAL EQUIPMENT

A. The contractor shall examine the drawings and coordinate with existing conditions confirm the final location of all electrical equipment to be installed in the vicinity of piping. Plan and arrange all overhead piping no closer than 6'-0" feet from a vertical line above electrical equipment, including but not limited to, elevator machine room equipment, main switchgear equipment, motor control centers, starter, electric motors, switchboards, panelboards, or similar equipment.

B. Where the installation of piping does not comply with the requirements of the foregoing paragraph, where feasible the piping shall be relocated.

C. Furnish gutters as follows:

1. Provide and erect a gutter of 16 ounce cold rolled copper or 18 gauge galvanized steel, under every pipe which is within 6'-0" from a vertical line to any motor, electrical controllers, switchboards, panelboards, or the like.

2. Each gutter shall be reinforced, rimmed, soldered and made watertight, properly suspended and carefully pitched to a convenient point for draining. Provide a 3/4" drain, with valve as directed, to nearest floor drain or slop sink, as approved.

3. In lieu of such separate gutters, a continuous protecting drain pan of similar construction adequately supported and braced, properly rimmed, pitched and drained to a floor drain or suitable waste, may be provided over any such electrical equipment, and extending 3'-0" in all directions beyond the electrical equipment, over which such piping has to run.

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGE

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

3.7 WELDING PROCEDURE

A. Pipe welding shall comply with the provisions of the latest revision of ANSI/ASME B31.9 Building Services Piping, or such NYC DOB requirements as may supersede codes mentioned above.

B. Pipe welding for MPS/HPS (15 psig and above) shall be in accordance with ASME B31.1 Power Piping Code, or such NYC DOB requirements as may supersede codes mentioned above.

C. Before any new pipe welding is performed, submit a copy of welding Procedure Specifications together with proof of its qualification as outlined and required by NYC DOB.

D. Before any operator shall perform any pipe welding, submit the operator's Qualification Record in conformance with NYC DOB, showing that the operator was tested under the proven Procedure Specification submitted.

E. Repair or replace any work not in accordance with these specifications.

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SECTION 23 05 93
TESTING, BALANCING AND ADJUSTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. Testing, adjusting, and balancing of Air Systems.

B. Testing, adjusting, and balancing of Hydronic and Steam Systems.

C. Measurement of final operating conditions of HVAC Systems.

D. Sound measurement of equipment operating conditions.

E. Vibration measurement of equipment operating conditions.

F. Measurement of the IAQ after the completion of the final balancing.

1.3 SCOPE OF WORK:

A. General:

1. Testing, adjust and confirm design airflows rates, pressure drops, pressures, temperatures and heat transfer performance for HVAC systems, including, but not limited to condenser water system, steam and condensate system, hot water heating system, supply air, return air and exhaust air systems, including all associated pumps, heat exchangers, coils, fans, dampers, diffusers, terminal devices, fume hoods, valves and accessories, cooling towers, boilers, chillers, etc.

2. Provide all necessary labor, materials, products, equipment and services to balance and test all HVAC systems, to verify conformance to specified quantities, and to the design intent of the mechanical system and for the testing of all the fire safety systems.

3. Provide openings required for pitot tube traverses. After balancing, close openings with removable gasketed plugs. Submit samples of proposed plugs for approval.

4. Conduct routine inspections during the mechanical systems installation and report on poor ductwork installation (likely to produce abnormal leakage), poor piping installation, poor placement of dampers or valves, and any circumstance which will encumber the balancing of the mechanical systems.

5. Review Drawings and Specifications and ensure that adequate provisions are made in the mechanical installation to facilitate the balancing of all air, steam and water systems; make recommendations to the Commissioner where additional measures may be required.

6. Include all items of labor, materials, products, equipment and devices required to comply with such standards and codes in accordance with the contract documents to balance all air and hydronic systems, to verify conformance to specified quantities and to the design intent of the mechanical system. Where quantities, sizes or other requirements indicated on the drawings or herein specified are in excess of the standard or code requirements, the specifications and drawings shall govern.

1.4 REFERENCES:

A. ASHRAE - Standard 111 - 1988 Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air Conditioning, and Refrigeration Systems.

B. ASHRAE - 1997 HVAC Systems and Applications Handbook: Chapter 57, Testing, Adjusting and Balancing.

C. AABC- National Standards for Total System Balance.

D. NEBB - Procedural Standards for Testing, Balancing and Adjusting of Environmental System.

E. NEEB - Procedural Standard for Measurement of Sound and Vibration (Latest edition).

F. SMACNA - HVAC System Testing, Adjusting and Balancing.

G. Sheet Metal Industry - Certification of Testing, Adjusting and Balancing Technicians.

1.5 DEFINITIONS

A. Systems testing, adjusting, and balancing is the process of checking and adjusting all the building environmental systems to produce the design objectives. It includes:

1. the balance of air, steam and hydronic distribution;

2. adjustment of total system to provide design quantities;

3. verification of performance of all equipment and automatic controls;

4. sound and vibration measurement.

5. IAQ measurements

B. Test: To determine quantitative performance of equipment.

C. Adjust: To regulate the specified fluid flow rate and air patterns at the terminal equipment (e.g., reduce fan speed, throttling).

D. Balance: To proportion flows within the distribution system (submains, branches, and terminals) according to specified design quantities.

E. Procedure: Standardized approach and execution of sequence of work operations to yield reproducible results.

F. Report forms: Test data sheets arranged for collecting test data in logical order for submission and review. These data should also form the permanent record to be used as the basis for required future testing, adjusting, and balancing.

G. Terminal: The point where the controlled fluid enters or leaves the distribution system. These are supply inlets on water terminals, supply outlets on air terminals, return outlets on water terminals, and exhaust or return inlets on air terminals such as registers, grilles, diffusers, louvers, and hoods.

H. Main: Duct or pipe containing the system's major or entire fluid flow.

I. Submain: Duct or pipe containing part of the systems' capacity and serving two or more branch mains.

J. Branch main: Duct or pipe serving two or more terminals.

K. Branch: Duct or pipe serving a single terminal.

1.6 SUBMITTALS:

A. Procedures: Furnish submittals in accordance with the general requirements of the Contract Documents.

B. Submittals: Proposed balancing procedure on a system by system basis.

C. Activity Programs: The contractor shall prepare and submit for approval a detailed activity program. The program shall be in accordance with the overall Construction Schedule.

1. Specific requirements included within the activity program shall be:

   a. Required dates for the acceptance of system/equipment from the Contractor "ready for balance".

   b. Required Periods for the individual system balancing.

   c. Requirements for attendance from the Contractor and their suppliers.

2. Activity Programs shall be prepared for each major system and/or specific item of equipment.

3. Activity Programs shall include, but shall not be limited to the following:

   a. Individual Air Handling Units including:

      1) Fans (Supply, Return/Exhaust)

2) Coils (Cooling, heating and snow melting)

3) Outside air, return air and spill air dampers

4) Air Distribution Systems

b. General Exhaust System

c. Toilet Exhaust System

d. All other air handling and exhaust systems as indicated on the drawings.

D. Progress Reports: Submit progress reports on a system by system basis, including preliminary recommendations; allow for one such progress report, per system, prior to issue of final report. Progress report shall be issued upon notification by the Commissioner shall be turned around within 10 working days.

E. Certified Test Reports: Furnish test results and a schematic layout for each system, certified by the Contractor. Six completed copies including schematic layouts, shall be submitted to the Commissioner. Balancing report submitted shall list each VAV/ CV box, grille, register and diffuser associated with each system, giving numerical identification (including room number or area name), design quantity, final quantity, etc., and design power requirements for all supply and exhaust fans and actual operating conditions listing RPM, volts, amps, kw, etc., in accordance with AABC/NEBB test report forms. Include identification and types of instruments used and their most recent calibration date with test reports.

1. General

a. Provide a complete balancing report in 3-ring binder manuals. Report should include contents, page and index tabs and cover identification at front and side.

b. Include types, serial number and dates of calibration of test instruments. (Submit calibration certificates).

c. Record test data on a sepia made from the latest available revised set of mechanical drawings and submit six (6) copies upon completion of the balancing contract.

d. Install at each piece of mechanical equipment a "Data Register" showing significant operating temperatures, pressures, amperes, voltage frequency, motor KW, FLA, belt size/model number and sheave size. "Data Register" to be enclosed in a plastic holder securely attached to the equipment or to a wall in the adjacent area.

e. Submit with report, fan and pump curves with operating conditions plotted. Submit grille and diffuser shop drawings and diffusion factors.

f. Submit with the report schematics of all the air and water systems. The schematics should include the following:

F. Report Data

1. Duct Air Quantities - Mains, Branches, Outside Air, Return Air and Exhausts (Maximum and Minimum):

    a. Duct sizes (clear inside dimension)

    b. Number of pressure readings

    c. Sum of velocity

    d. Average velocity

    e. Duct recorded air flow rate

    f. Duct design air flow rate

    g. Provide data with system schematic

2. Air Inlet and Outlets:

    a. Outlet identification location and designation

    b. Manufacturer's catalogue identification and type

    c. Application factors

    d. Design and recorded velocities

    e. Design and recorded air flow rates

    f. Deflector vane of diffuser cone settings

    g. Provide data with system schematic

    h. Static Pressure upstream of terminal device.

3. Building Pressurization Data:

    a. Outside air temperatures

    b. Outside wind velocity

    c. Building pressures plotted with respect to systems

    d. Supply air, return and exhaust air flow rates

    e. Locations of pressure measuring points, inside and outside building

4. Air Heating and Cooling Equipment

   a. Equipment Installation Data:

   b. Equipment Design Data:

   c. Equipment Recorded Data:

5. Notice: Furnish written notification to the Commissioner 5 days prior to commencement of the work.

1.7 QUALITY ASSURANCE

A. Testing and Balancing Agency Qualifications:

1. Employ the services of an independent testing, adjusting, and balancing agency meeting the qualifications specified below, to be the single source of responsibility to test, adjust, and balance the building mechanical systems identified above, to produce the design objectives. Services shall include checking installations for conformity to design, measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.

2. The independent testing, adjusting, and balancing agency shall be certified by the National Environmental Balancing Bureau (NEBB) or Associated Air Balance Council (AABC) in those testing and balancing disciplines required for this project, and having at least one Professional Engineer licensed in NY, certified by NEBB or AABC as a Test and Balance agent.

3. The air and water balance agency shall have at least 3 years testing, adjusting and balancing experience, as well as have successfully completed projects of similar size and scope.

4. The work must be performed by NEBB or AABC Certified Testing, Adjusting and Balancing Technician who may be assisted by other TAB Technicians. The Certified Testing, Adjusting and Balancing Technician is responsible for:

   a. Procedures to be followed

   b. Accuracy of all testing

   c. Integrity of recorded data

   d. Entering all data and reporting any abnormal or notable conditions on the report forms

   e. Initialing and dating each sheet

5. The General Section of the Balance Report shall include the names, signatures, and registration numbers of the Technicians who were assigned to the project.

6. Codes and Standards:

   a. NEBB: "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."

   b. AABC: "National Standards For Total System Balance".

   c. ASHRAE: ASHRAE Handbook, 1984 Systems Volume, Chapter 37, Testing, Adjusting, and Balancing.

7. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the Work.

B. IAQ Testing Agency Qualifications:

1. The testing and balancing agency shall employ the services of an independent IAQ testing agency to test the building air systems identified above, to produce an IAQ report.

2. In conjunction with the testing and balancing agency, the IAQ testing agency's services shall include checking installations for conformity to design, measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.

3. The independent testing agency shall be certified by a National entity jurisdiction in IAQ testing disciplines required for this project, and having at least one Professional Engineer registered in the State in which the services are to be performed.

4. The testing agency shall have at least 3 years testing experience, as well as have successfully completed projects of similar size and scope.

5. The work must be performed by a Certified Technician who may be assisted by other Technicians. The Certified Technician is responsible for:

   a. Procedures to followed

   b. Accuracy of all testing

   c. Integrity of recorded data

   d. Entering all data and any abnormal or notable conditions in report forms

   e. Initialing and dating each sheet

6. The General Section of the Report shall include the names, signatures, and registration numbers of the Technicians who were assigned to the project.

1.8 CONTRACTOR RESPONSIBILITIES

A. Prepare each system for testing and balancing

B. Cooperate with the testing agencies, provide access to all work, equipment and systems.

C. Put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing. Operate systems and under conditions required for proper testing, adjusting, and balancing.

D. Notify Commissioner seven days prior to time system will be ready for testing, adjusting, and balancing. Project readiness shall include:

1. Systems are started and running (fans and pumps have been checked for proper rotation).

2. Permanent electrical power wiring is complete.

3. Verification that all ductwork is fabricated and installed as specified.

4. Ceilings are installed in critical areas where air pattern adjustment may be required. Access to balancing devices are provided.

5. All equipment and ductwork access doors are securely closed.

6. All balancing, smoke and fire dampers are installed and in full open positions.

7. All isolation and balancing valves are open and control valves are operational.

8. System installation is complete, with Controls and Instrumentation installed and fully operational.

E. The Testing Agency will provide the necessary input in the form of recommendation, and engineering drawings to facilitate testing construction.

F. Where fans (air handling units, supply fans, return fans, exhaust fans, etc.) are provided with variable pitch sheaves, the Contractor shall adjust sheaves, as required, at no additional cost to the City of New York, until desired Design Points (CFM and Static Pressure) are reached. If adjustment of the variable pitch sheaves is beyond the range of the sheaves, the Contractor shall replace sheaves, as required, at no additional cost to the City of New York, until the desired Design Points (CFM and Static Pressure) are reached. Where fans (air handling, supply, return, exhaust, etc.) Are specified with fixed ratio sheaves, the Contractor shall replace sheaves with new sheaves, at no additional cost to the City of New York until desired Design Points (CFM and Static Pressure) are reached. Where fans (air handling units, supply fans, return fans, exhaust fans, etc.) are of the vane axial type with adjustable vanes, the Contractor shall, at no additional cost to City of New York, adjust vanes as required until desired Design Points (CFM and/or Static Pressure) are reached.

G. The contractor shall coordinate the leakage testing of the duct work with the Testing and Balancing Agency, to ensure that duct testing is done in a timely manner so as not to interfere with the progress of the work.

H. All duct work etc. that is found to exceed the permissible leakage rates shall be immediately repaired by the contractor, at no additional cost and in a timely manner so as not to interfere with the progress of the work.

1.9 SEQUENCING AND SCHEDULING – RTU SYSTEM BALANCING PROCEDURE

A. Sequencing work to commence after completion of systems and schedule completion of work before Substantial Completion of Project.

1.10 DRAWING AND CONSTRUCTION REVIEW

A. Perform a preconstruction review of the following documents:

1. Updated construction drawings
2. Contract specifications
3. Addenda
4. Submittal data
5. Shop drawings
6. Automatic Control drawings

B. Prepare a report of the preconstruction review list of recommended changes to allow most effective balancing.

C. Perform four construction reviews of the mechanical installation during the progress of the project. Purpose of the reviews to be:

1. Identify potential problems for performing balancing.
2. Identify modifications which will aid balancing.
3. Schedule and coordinate balancing with Commissioner.

D. Prepare a report of each construction review.

E. Pre-Balancing Conference: Prior to beginning of the testing, adjusting, and balancing procedures, schedule and conduct a conference with the Commissioner and representatives of installers of the mechanical systems. The objective of the conference is final coordination and verification of system operation and readiness for testing, adjusting, and balancing.

1.11 PROJECT/SITE CONDITIONS

A. General: Do not proceed until systems requiring testing, adjusting and balancing are clean and free from debris, dirt, and discarded building materials.

B. Air balance and testing shall not begin until system has been completed and is in full working order. The contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Provide all necessary testing, retesting, and balancing equipment including but not limited to instruments, gauges, blowers, tools, scaffolding, ladders, etc.

B. Provide all necessary instruments. Instruments shall be used and applied which are best suited to the system function being tested. Instruments shall be in first class state of repair and have been calibrated within a period of six months prior to starting the job. Calibration history of each instrument shall be available for examination. Instruments shall be re-calibrated upon completion of the job if required by the Commissioner to prove reliability.

2.2 SOURCE QUALITY CONTROL

A. Test, calibrate, retest and recalibrate measuring instruments at the laboratory.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before commencing work, verify that systems are complete and operable. Ensure the following:

1. Equipment is operable and in safe and normal condition.

2. Temperature control systems are installed complete and operable.

3. Proper thermal overload protection is in place for electrical equipment.

4. Pre and final filters are clean and in place. If required, install temporary media in addition to final filters.

5. Duct systems are clean of debris.

6. Correct fan rotation.

7. All fire, fire/smoke and volume dampers are in place and are in the full open position.

8. Coil fins have been cleaned and combed.

9. Access doors are installed and closed and duct end caps are in place.

10. Terminal devices and air outlets are installed, connected and accessible and adjusted for full maximum flow.

11. Duct system leakage has been minimized. All duct systems requiring Leakage Tests have been tested and accepted.

12. Service and balance valves are open.

B. Report to Commissioner any defects or deficiencies noted during performance of services.

C. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance.

D. If, for design reasons, system cannot be properly balanced, report as observed.

E. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

A. Provide instruments required for testing adjusting and balancing operations. Make instruments available to Commissioner to facilitate spot checks during testing.

3.3 INSTALLATION TOLERANCES

A. Adjust Air Handling Systems to the following tolerances:

1. Supply systems shall be balanced so that:

a. The total quantity to each space is within - 5% to + 10% of design values.

b. If two outlets in space, each outlet is within - 10% to +10% of design value.

c. If three or more outlets in space, each outlet is within -15% to +15% of design value.

2. Exhaust and return systems shall be balanced so the total quantity from each space is -10% to +10% of design values.

3.4 ADJUSTING

A. Recorded data shall represent actually measured or observed condition.

B. Permanently marked settings of valves, dampers, and other adjustment devices, allowing settings to be restored. Set and lock memory stops.

C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.5 WELDING INSPECTION

A. Visual Inspection: Perform in accordance with Industry Standards. Cut out and test defective welds. If the percentage of defective welds is excessive, cut out and test additional welds as directed by Commissioner.

3.6 VERIFICATION OF CONTROL OPERATION

A. General: Perform the checks outlined in the following for all air system controls:

1. Thermostats and humidistats - Verify calibration and operation of all thermostats and humidistats. Any Deficiencies shall be reported for correction. Recheck after correction. Record thermostat set point and output signal, space temperature.

2. Damper Operation - Verify operation and position for all dampers. Any Deficiencies shall be reported for correction. Recheck after correction.

3. Other Controls - Simulate control operations with contractor in accordance with design requirements and manufacturer's recommendations. Any deficiencies shall be reported for correction. Recheck after correction.

3.7 LEAKAGE TESTING, AIR DISTRIBUTION SYSTEM:

A. General: Each air distribution system shall be tested for leakage before insulation is applied.

1. After portions of the Work are completed, the following tests shall be made in the presence of the Commissioner. Five (5) days advance written notice of the tests shall be given to the Commissioner, who in turn will notify other parties interested. Furnish all gauges, blowers, instruments, test equipment and personnel required for tests, and make all provisions for removal of test equipment after tests have been made.

B. Air Handling Systems:

1. Ductwork (+/-) 2.0" wg (or less) external static pressure class (see following schedule): Before insulation is applied, run fan at design static pressure and check all joints for all ductwork, risers and branches.

2. Ductwork (+/-) 3.0" wg (or greater) external static pressure class (see following schedule): All ductwork, risers and branches shall be individually tested with a blower, orifice section and U-tube gauge board. Each riser and branch shall be isolated from the remainder of the system by means of seals, plugs, or caps.

3. The blower shall maintain the design pressure class (see chart below) pressure differential across the orifice plate. Leaks which cause an air loss greater than the permissible leakage rate, defined below and, noisy or whistling leaks, shall be repaired and a retest made.

4. All ductwork: Horizontal mains in the mechanical rooms, tenant spaces and service rooms shall be tested after all riser tests have been accepted (where required) and after risers have been connected to the mains but before the branches have been connected to the risers. Mains shall be tested as described for risers and branches.

5. After the acceptance of the tests by the Commissioner, the branches shall be connected to the risers and the ductwork shall be released for insulation.

6. Permissible leakage rates:

Duct System	Pressure Class-External Static Pressure	SMACNA Seal	SMACNA Leakage Class
All supply ducts on systems without VAV terminal boxes from fan discharge to diffuser, and all ductwork downstream of VAV boxes to diffusers	+2" W.G.	B	12
All return ducts and exhaust ducts, where not used for smoke exhaust	-1" W.G.	B	12

3.8 OPERATING TESTS

A. General: After the various systems are pressure-tested and cleaned as hereinbefore specified, each piping and air handling system shall be tested in the presence of the Commissioner. Five days advance written notice of the tests shall be given to the Commissioner by the Contractor who in turn will notify other parties interested. Furnish all gauges, instruments, test equipment and personnel required for the tests. Adjust all equipment to perform with the least possible noise and vibration consistent with its duty. Quietness of operation of all equipment is a requirement. Any equipment producing objectionable noise in occupied spaces must be repaired or removed and replaced with satisfactory equipment.

B. NC (Noise Criteria) Tests: Operate the air handling systems after balancing, to determine that the scheduled NC ratings in the spaces are not exceeded.

3.9 AIR, WATER AND STEAM BALANCING

A. Performance Verification:

1. Within one year after completion of air and water balance work, the Commissioner may request recheck and verification of outlets, supply air fan, exhaust air fan, pump, and other equipment listed in test report. Provide technicians and instruments when making tests required during this period of time.

2. Put all heating, ventilating and air conditioning systems and equipment into full operation and continue operation during each working day of testing and balancing.

3. Perform all work necessary to complete testing and balancing of air and water systems, including but not limited to the following.

   a. Balance, adjust and test air-moving equipment and air distribution, supply, return, exhaust, spill and recirculation systems.

   b. Test hot water pumps.

   c. Balance hot water distribution system.

   d. Submit for approval complete test and balance data upon completion of tests and balancing.

B. Balance Data Report Forms: Provide both design and actual conditions for each item listed. Reports are required for each air handling supply, exhaust/spill, and recirculation and water system. Include as a minimum the following data.

1. Supply Systems:

   a. Date

   b. System No. and location

   c. Fan model #, arrangement, class

   d. Fan motor RPM, pulley size

   e. Fan motor amperage

   f. Pressure drop across coils and filters (advise if coils are wet or dry)

   g. Fan suction static pressure

   h. Fan discharge (or plenum) static pressure

   i. Unit discharge static pressure (External)

j. Compressor amperage

k. Rated motor amperage, starter heater number and ampere rating

l. Recirculated air flow (CFM)

m. Outside air flow (CFM)

n. Outside air conditions (DB and WB)

o. Mixed air conditions (DB and WB)

p. Return air conditions (DB and WB)

q. Entering coil conditions (DB and WB)

r. Leaving coil conditions (DB and WB)

s. Fan discharge conditions (DB and WB)

t. Main Supply duct (CFM and Static Pressure)

u. Final adjusted percentage of design

2. Exhaust and Recirculation Systems:

a. Date

b. Fan model #, arrangement and class

c. System number and location (corresponding supply fan system)

d. Rooms or area served

e. Fan motor RPM

f. Motor amperage and starter heater number and amperage rating

g. Rated motor amperage

h. Fan inlet static pressure and temperature (DB & WB)

i. Fan outlet static pressure and temperature (DB & WB)

j. Final adjusted percentage of design

3. Room Data:

   a. Room number

   b. Supply and exhaust/return system number

   c. Supply at each diffuser (min. and max. for VAV systems)

   d. Return/Exhaust at each register or grille

   e. Air opening sizes and area factors

   f. Final adjusted percentages of each opening

C. Balancing Procedure:

1. Air Distribution Systems: Operate the air handling systems and make adjustments in the controls and equipment as required to balance the systems to deliver the required design air quantities and temperatures.

   a. Air Handling Systems:

      1) First set of air filters shall be in place whenever fans are run. Replace with clean set of specified filters before testing.

      2) Run supply fan with all dampers in their normal position (minimum outside air). Duplicate normal conditions as far as possible with clean filters in place, coils in operation, etc. Adjust for proper ratio of outside and return air.

   b. Note that fan powered mixing boxes are calibrated at factory. However, due to changing inlet conditions, recalibrate each mixing box in field as part of this work and provide reading for box (CFM) (M^3/sec), and primary air at maximum and minimum setting and corresponding inlet and outlet static pressure.

   c. NC (Noise Criteria) Tests: Operate the air handling systems after balancing, to determine that the schedule NC ratings in the spaces are not exceeded.

   d. All volume dampers and VAV boxes shall be positioned for maximum air flow before taking initial supply airflow and static pressure readings. Advise Commissioner immediately if design airflows of air handling units are not achieved before proceeding with further testing.

   e. Test and adjust fan RPM to design requirements.

   f. Test and record motor load in amperages at various filter percentages.

   g. Make pitot tube transverse of main supply ducts. Obtain design air flow at 50 percent dirty filter condition.

h. Test and adjust systems for design recirculated air flow.

i. Test and record system static pressures suction and discharge.

j. Test and adjust systems for design outside air.

k. Test and record entering air temperatures (DB & WB).

l. Test and record leaving air temperatures (DB & WB).

m. Adjust main supply and return air ducts to proper design air flow.

n. Test and adjust each diffuser, grille and register to within percentage of design requirements as detailed above.

o. Adjust all zones to proper design CFM, supply and return. VAV devices (boxes) shall be tested for minimum and maximum flow.

p. Identify each VAV terminal device, grille, diffuser and register as to locations and area.

q. Size, type, factors, and manufacture of diffusers, grilles, registers, and tested equipment shall be identified and listed. Use Manufacturer's ratings on equipment to make required calculations.

r. Readings and tests of diffusers, grilles, and registers shall include required velocity and test resultant velocity, required air flow and test resultant air flow after adjustments.

s. Set and adjust automatically operated dampers to operate as specified, indicated, and/or noted. Check controls for proper calibration and list controls requiring adjustment.

t. Adjust diffusers, grilles, and registers to minimize drafts.

u. Test filter manometer and set tap at maximum pressure drop.

2. AC Units

a. During balancing of the AC units ensure that outdoor air, general exhaust and toilet exhaust systems are operating at their design levels.

b. Adjustment and balancing of the AC units will require close coordination with the contractors to ensure desired operation sequence and performance are achieved.

c. Some of the AC units have been provided with variable frequency inverter drives, which should facilitate the balancing operation.

d. Test and adjust fan RPM to design requirements. Ensure that design volume flow rates and static pressure are achieved at branch outlets.

e. Verify correct fan rotation.

f. Test and record motor load in amps at various flow rate percentages.

g. Make pitot tube traverses of main supply ducts to determine fan delivery. Obtain design air flow at 50% dirty filter condition (simulate).

h. Repeat for 90%, 80% and 70% of design flow, at constant design static pressures.

i. Measure and record supply air temperature (WB & DB) and return air temperature (WB & DB).

j. Measure Total Static Pressure and discharge static pressures at branch outlets for each flow condition.

k. Measure outdoor air volume and return air volume through the outdoor air damper and room return air opening respectively, for each flow condition.

3. Outdoor Air Supply Systems:

a. Outdoor air supply systems must be balanced with general exhaust and toilet exhaust systems operating at their design levels.

b. Test and adjust fan RPM to design requirements.

c. Verify correct fan rotation.

d. Test and record motor load in amps in various flow rate percentages.

e. Make pitot tube traverses of main supply ducts to determine fan delivery. Measure design flow at 50% dirty filter condition (simulate).

f. Measure the static pressure profile of the air handling unit and system duct static pressure at selected points (minimum of 10) throughout the system, including points along the vertical riser shafts.

g. Adjust and balance the motorized fresh air dampers in each MER or at each AC unit to obtain design flow. Dampers are two position, thus requiring adjustment of damper blade positioning linkage in the open position.

h. After adjustments to dampers throughout the system have been made, re-check fan performance adjusting as necessary.

i. Mark all damper settings.

D. Reports and Records: Include records of flow measurements made during testing and balancing work. Provide complete set of marked-up balancing plans with report. Plans shall show air opening numbers, and flow station numbers that correspond to numbering system in balancing logs.

E. After completion mark adjusted position of each balancing valve and damper for permanent reference.

F. Keep system in operation for period of five days during which time final inspection will be made by the Commissioner. After completion mark adjusted position of each balancing valve and damper for permanent reference.

3.10 INDOOR AIR QUALITY TESTING

A. Equipment Monitoring:

1. An infrared photo acoustic analyzer shall be used to monitor for carbon dioxide, carbon monoxide, and total volatile organic compounds levels. It is a real time analyzer equipment. The sampling installation in the building shall extend into the outside air, supply air and return air of each central HVAC system. In tenant areas the sampling points shall be as close as possible to the occupants breathing zones.

2. Calibration shall be performed in accordance with manufacturer specifications and recommended procedures.

B. Application (Analytical Methodology)

1. The analytical method used shall be a direct reading of the infrared spectroscopy technique, which classifies different organic compounds by their ability to absorb energy of specific wavelengths in the infrared region, specifically, center wavelength 3.4 μm and 3.6 μm respectively, as well as determine carbon dioxide and carbon monoxide in parts per million (ppm). The sub detection levels of the instrument, in parts per million (ppm) and milligrams per cubic meter (mg/m^3), shall be as follows:

a. Carbon dioxide ≈ 1.7 ppm;

b. Carbon monoxide ≈ 0.2 ppm;

c. Total volatile organic compounds, center wavelength 3.4 μm = 0.036 mg/m^3. The instrument is calibrated for propane at this wavelength. The detection level of this filter is sensitive to changes in relative humidity.

d. Total volatile organic compounds center wavelength 3.6 μm = 0.07 mg/m^3. The instrument is calibrated for formaldehyde at this wavelength.

C. Indoor Air Quality Periodic Testing

1. Two different sampling strategies shall be used, time specific sampling and 24 hour Continuous Monitoring.

2. The first strategy shall be the collection of indoor gaseous air quality data from a floor at a specific point in time (known as Time Specific Sampling), providing a snapshot of ambient conditions which are to be compared to applicable indoor air quality standards for verification of compliance with operating parameters.

3. The second strategy (known as 24-Hour Continuous Monitoring) expands upon the first through the use of additional equipment and provides a 24-hour study of conditions on the floor. The enhanced data produced by this configuration provides a more comprehensive view of ambient conditions and can record transient conditions that occur any time during monitoring. A graphical representation of gas concentrations over the sampling period is provided as part of the report.

D. Time-Specific Sampling

1. Indoor Gaseous Air Quality Monitoring for carbon dioxide (CO_2), carbon monoxide (CO) and two classes of total volatile compounds (TVOC) utilizing air sampling and the Infra-red Photo acoustic Multi-Gas Analyzer shall be performed at 4 locations on each floor or every 10,000 feet, whichever is smaller as well as at the central HVAC equipment. This survey shall also include a visual inspection of the MER for parameters adversely affecting indoor air quality. The inspection should be focused on mechanical hygiene.

2. 24-Hour Continuous Monitoring

a. Continual monitoring of Gaseous Indoor Air Quality Parameters shall include: carbon dioxide (CO_2), carbon monoxide (CO) and two classes of total volatile organic compounds (TVOC). This monitoring shall be performed utilizing air sampling installations and Infra-red Photo-acoustic Multi-Gas Analyzer configured for continuous, unattended operation for a 24-hour period. This survey shall include a visual inspection of the MER for parameters adversely affecting indoor quality. The inspection should be focused on mechanical hygiene.

END OF SECTION 23 05 93

SECTION 23 07 00
HVAC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Section 09 90 00 - Painting: Painting and Coating.

B. Section 23 05 00 - Common Work Results for HVAC.

C. Section 23 05 50 - Basic Mechanical Materials and Methods.

1.3 SECTION INCLUDES

A. This section includes the following basic mechanical materials and methods to complement other Division 23 Sections.

B. Insulation for ductwork, piping, and equipment as described.

1.4 REFERENCES

A. ANSI/ASTM C553 - Mineral Fiber Blanket and Felt Insulation.

B. ASTM C335 - Thermal Conductivity of Pipe Insulation.

C. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

D. ASTM E84 - Surface Burning Characteristics of Building Materials.

E. NFPA 255 - Surface Burning Characteristics of Building Materials.

F. UL 723 - Surface Burning Characteristics of Building Materials.

1.5 QUALITY ASSURANCE

A. Applicator: Company specializing in ductwork insulation application with three years minimum experience.

B. Insulation Materials: Insulation materials shall be manufactured at facilities certified and registered to conform to ISO 9000 Quality Standard.

C. Insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere the facing or jacket to the insulation) fire and smoke hazard ratings as tested by procedure ASTM E.84, NFPA 255 or UL 723 not exceeding:

1. Flame Spread: 25

2. Smoke Developed: 50

D. Accessories such as adhesives, mastics, cements, and tapes for fittings shall have the same component rating as listed above. All products or their shipping cartons shall bear a label indicating that flame and smoke ratings do not exceed requirements. Treatment of jackets or facings to impart flame and smoke-safety shall be permanent. The use of water soluble treatments is prohibited.

E. Asbestos shall not be used in the manufacture of insulation products.

1.6 SUBMITTALS

A. Submit product data under provisions of General Conditions.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions under provisions of General Conditions.

PART 2 - PRODUCTS

2.1 INSULATION FOR SHEET METAL

A. Note that ductwork and casings which are acoustically lined, need not be insulated on the exterior. All duct insulation to be R value 6 to comply with energy code requirements.

B. Insulate sheet metal as follows:

1. All air conditioned and/or heated low pressure supply ductwork from fan discharge and from devices which reduce air pressure to diffusers, grilles and registers including diffuser plenums - 1-1/2" Type D-1 for round ducts and concealed rectangular ducts - 1" Type D-2 for exposed rectangular ducts.

a. Note that insulation (with vapor barrier) shall be continuous across all duct joints, hot water reheat coil pipe bends (insulated end caps), diffusers, etc. so as to provide a continuous, fully insulated with uninterrupted vapor barrier from the fan discharge to the diffusers.

2. All return air ductwork in non-conditioned spaces shall be insulated similar to low pressure supply ductwork.

a. Ceilings of conditioned spaces shall not require return ductwork insulation except for ceiling space located below roofs where return ductwork shall be insulated similar to low pressure supply ductwork.

3. All medium pressure ductwork from fan discharge to any air terminal device which reduces air pressure -1-1/2" Type D-1 for round ducts and concealed rectangular. 1" Type D-2 for exposed rectangular ducts. All low pressure ductwork from air terminal device which reduces pressure to diffusers, grilles, and registers - 1-1/2" Type D-1.

    a. Note that insulation (with vapor barrier) shall be continuous across all duct joints, hot water reheat coil pipe bends (insulated end caps) diffusers, etc. so as to provide a continuous, fully insulated with uninterrupted vapor barrier from the fan discharge to the diffusers.

4. Ducts and sheet metal plenums behind louvers containing all or a percentage of outside air on inlet side of air handling units and ventilation fans - 2" Type D-2.

5. All supply air sheet metal plenums - 2" Type D-2.

6. Outdoor ducts whether acoustically lined or not shall be insulated with 2" thick type D-2 and then weather proofed as specified under Weatherproofing Finishes for Outdoor Insulation. Exceptions: Toilet exhaust, general exhaust, smoke exhaust and stair pressurization ductwork.

7. Exhaust air ductwork from automatic dampers to discharge louvers (including sheet metal plenums behind louvers) - 2" type D-2.

8. Non heated air exhaust running through heated or air conditioned spaces - 2" type D-3 for concealed ducts, 2" type D-4 for exposed ducts.

9. All outside air supply - 2" Type D-2.

C. Type D-1 Flexible Duct Insulation With Vapor Barrier

1. Flexible duct insulation shall be 1 lb per cu. ft. density glass fiber with a maximum K factor of 0.29 at 75 degrees F. mean temperature, with reinforced foil-faced, flame resistant kraft vapor barrier.

2. Insulation shall be secured with duct adhesive. All joints shall be sealed by adhering a 2" sealing lap at all joints with vapor barrier adhesive or 3" strips of vapor barrier jacket applied with vapor barrier adhesive. Insulation shall then be fastened with 16 gauge copper-clad wire or fiberglass cord on 12" centers. On ducts over 24" wide, welded pins & clips shall be used on the underside.

3. Exposed round shall have a white vinyl reinforced foil vapor barrier. Application same except wires shall be omitted and blanket shall be secured by stapling 2" longitudinal lap. Staples shall be coated with vapor barrier coating.

D. Type D-2 Rigid Duct Insulation With Vapor Barrier:

1. Rigid duct insulation shall be 4.2 lbs per cu. ft. density glass fiber with maximum K factor of .24 at 75 degrees F mean temperature with vapor barrier facing.

2. Insulation shall be impaled over welded pins applied to duct surface on 12" to 18" centers. Use a minimum of two rows of fasteners on each side of duct. Secure insulation with suitable speed washers or clips firmly imbedded into insulation.

3. All joints and voids in the insulation shall be filled with Mineral Wool Cement. All joints, speed washers and breaks in the vapor barrier shall be sealed with 3" wide strips of the vapor barrier facing adhered with vapor barrier adhesive.

4. Exposed duct work shall have a white reinforced foil vapor barrier facing. Care shall be taken in sealing joints speed washers, etc. with matching strips of vapor barrier to ensure good appearance.

2.2 INSULATION FOR EQUIPMENT

A. The following Cold Equipment shall be insulated with Vapor Barrier Board Insulation using Type E-1 insulation.

1. Single Inlet Fans Downstream of Cooling Coils - 2 inches.

B. Type E-1 Glass Fiber Rigid Equipment Insulation With Vapor Barrier:

1. Insulation shall be 4.2 lb. per cu. ft. density glass fiber with vapor barrier facing and having a maximum K factor of 0.24 at 75 degrees F mean temperature.

2. Insulation shall be firmly held in place with copper clad wire or pins and clips on 12" centers.

3. All joints and voids in the insulation shall be filled with mineral wool cement. All joints and breaks in the vapor barrier shall be sealed with strips of the vapor barrier facing adhered with vapor barrier adhesive.

4. Finish shall consist of imbedding an open weave glass fabric (20 x 20) into wet coating of lagging adhesive over-lapping the seams at least 2". A finish coat of lagging adhesive shall then be applied.

5. Sections of equipment requiring periodic servicing such as heads and pumps shall be insulated with sheet metal covers lined with 4.2 lb. density fiber glass board.

C. Type E-2 Glass Fiber Rigid Equipment Insulation:

1. Insulation shall be 4.2 lb. per cubic foot density glass fiber having a maximum K factor of .24 at 75 degrees F mean temperature.

2. Insulation shall be firmly held in place with copper-clad wire or pins and clips on 12" centers.

3. All joints and voids in the insulation shall be filled with mineral wool cement.

4. Over the insulation apply 1" galvanized wire netting secured to the bands or wires and pulled down tight. They apply 1 coat of Insulating and Finishing Cement troweled to a smooth finish.

5. Exposed equipment shall be finished by embedding open weave glass fabric (20 x 20) into wet coating of lagging adhesive overlapping seams 2". A finished coat of lagging adhesive shall then be applied.

6. Sections of equipment requiring periodic servicing such as heads and pumps shall be insulated with sheet metal covers lined with 4.2 lb. density fiber glass board.

D. Type E-3 High Temperature Block Insulation:

1. High temperature insulation shall be 11 lbs. per cu. ft. density molded hydrous calcium silicate with a maximum K factor of 0.42 at 200 degrees F mean temperature.

2. Insulation shall be securely wired in place with copper clad wire or galvanized steel bands (½" x .015) on 12" centers.

3. All joints and voids of insulation shall be filled and pointed with mineral wool cement.

4. Over the insulation apply 1" galvanized wire netting secured to the bands or wires and pulled down tight. They apply 1/4" thick coat of Insulating and Finishing Cement trowelled to a smooth finish. This applies to both exposed and concealed work.

5. Sections of equipment requiring periodic servicing shall be insulated with aluminum covers lined with the same thickness of material as the adjoining insulation.

2.3 WEATHERPROOFING FINISHES FOR OUTDOOR INSULATION

A. Outdoor Round Duct:

1. Ductwork shall be insulated as specified under “Insulation for Sheet Metal” and provided with a weatherproof finish as described herein.

2. Finish with a .016" thick aluminum jacket which has a factory applied moisture barrier. For all applications where it is available, the jacketing shall be factory attached to the insulation and installed per manufacturer's recommendation.

3. Where field applied jacketing must be used it shall be applied with 2" overlap facing down from the weather and shall be secured with an aluminum band (½" x .020"), and seals applied on 12" centers with bands applied directly over butt overlaps. As an alternate the jacketing may be applied with Pli-Grip Rivets. Where jacketing is cut out or abuts an uninsulated surface, the joint shall be sealed with Insul-Coustic Sure Joint 405, Benjamin Foster GPM Mastic, or BF 30-45 Foam Seal or approved equal.

4. Fittings shall be insulated and finished with mitered sections of the insulation with factory attached aluminum jackets installed per manufacturer's recommendation.

B. Outdoor Equipment, Rectangular Duct Work and Irregular Surfaces:

1. Ductwork, equipment and irregular surfaces shall be insulated as specified under this section and provided with a weatherproof finish as described herein.

2. The surfaces shall be weather protected with two coats of Insulcoustic VI-AC Mastic, I-C 551, or Benjamin Foster GPM Mastic or approved equal with open weave glass cloth membrane imbedded between the coats. The total thickness of the coating shall be a minimum of 1/8".

2.4 MANUFACTURERS

A. Subject to compliance with requirements, provide by products by one of the following manufacturers:

1. John Manville

2. 3M

3. Manson Insulation

4. Or approved equal.

PART 3 - EXECUTION

3.1 PREPARATION

A. Install materials after ductwork has been tested and approved.

B. Clean surfaces for adhesives.

C. Do not operate air handling system with conditioned air prior to completion of insulation of the entire duct distribution system for that air handling system.

3.2 INSTALLATION

A. Insulation shall be applied on clean dry surfaces, after inspection and release for insulation application.

B. Insulate all valves, flanges, couplings and fittings. Valve and flange insulation shall be removable and reinstallable.

C. Do not operate air handling system with conditioned air prior to completion of insulation of the entire duct distribution system for that air handling system.

D. Full lengths of insulation shall be used except at end of straight sections and as required to accommodate fittings. Insulation shall be applied with the joints tightly fitted together. Cracks or voids shall be filled with insulation. Manufacturer's recommended installation procedures shall be strictly adhered to.

E. Insulation shall be continuous through wall and ceiling openings and sleeves. Where insulated piping or ductwork pierces fire rated partitions, walls, and floors, substitute anhydrous calcium silicate insulation with vapor barrier in lieu of fiberglass for a minimum of 8" from wall, to produce a hard surface for fire resistive packing.

F. Insulation on cold surfaces where vapor barrier jackets are used shall be applied with a continuous, unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold services shall be adequately insulated and vapor sealed to prevent condensation.

G. The edges and seams at all visible locations shall be finished in a neat and workmanlike manner.

H. All exposed ductwork insulation shall be applied with edges butted. Insulation shall be impaled over stick clips or pins welded to the duct, and secured with speed clips. Spacing of pins shall be as required to hold insulation firmly in place but not less than one pin per square foot. All joints and penetrations of the vapor barrier shall be sealed with a 3" wide strip of the same material, supplied with vapor barrier adhesive to both surfaces as recommended by adhesive manufacturers.

I. Blanket insulation shall be tightly sealed at all joints and seams. Insulation shall be cut longer than ductwork perimeter to allow maximum thickness on all areas and avoid excessive compression. All joints shall be over lapped at least 2" and stapled in place. The stapled seams shall be sealed with a minimum 3" wide pressure sensitive tape designed for use with the duct insulation. All breaks in the vapor barrier facing shall also be sealed with the tape. The underside of ductwork 18" or greater in width, and vertical surfaces 48" or greater shall have the insulation additionally secured with mechanical fasteners and speed clips spaced approximately 12" on center. The protruding ends of the fasteners shall be cut off flush after the speed clips are installed, and then sealed with the same tape as specified above.

J. Inserts shall be installed at hangers for cold insulated piping. Inserts between the pipe and pipe hangers shall consist of rigid pipe insulation of equal thickness to the adjoining insulation and shall be provided with vapor barrier where required. Inserts shall have sufficient compressive strength so that when used in combination with a sheet metal shield, they support the weight of the pipe and the fluid in it without crushing the insulation.

K. Finished installation shall provide a continuous and effective vapor barrier.

L. Refer to details on drawings.

END OF SECTION 23 07 00

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SECTION 23 07 10
FIRE RESISTIVE DUCT ENCLOSURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Section 23 05 00, Common Work Results for HVAC

B. Section 23 05 50, Basic Mechanical Materials and Methods

1.3 SECTION INCLUDES

A. Work of this Section includes labor, material, and equipment to provide 2 hours fire resistive rated duct enclosures.

1.4 REFERENCES

A. Test standards and reports for evaluating and rating performance of fire resistive and zero inch clearance duct wrap systems.

1. Underwriters Laboratories Inc., (UL):

a. UL 723, Surface burning characteristics per ASTM E 84:

b. UL 1978, First Edition of the Standard for Grease Ducts.

c. UL 263, Full Scale External (Engulfment) Fire Test.

d. UL 1479, Through - Penetration 3 hour Firestop Test.

e. UL1479, 1- & 2-hour Through-Penetration Firestop Tests.

2. American Society for Testing and Materials (ASTM)

a. E119, Standard Method of Fire Tests of Building Construction and Materials; 2 hour Wall Panel Test, and 2 hour External Total Engulfment Test.

b. E814, Standard Method of Fire Test of Through-Penetration Fire Stops; 2 hour Firestop Test.

c. E136, Combustibility. Tea.

d. C518-91, Aging Test.

3. US Department of Transportation (DOT)

4. New York City Department of Buildings; MEA.

B. Applicator: Manufacturer trained, specializing in fire resistive ductwork enclosure application with three years minimum experience.

C. Insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere the facing or jacket to the insulation) fire and smoke hazard ratings as tested by procedure ASTM E.84, NFPA 255 or UL 723 not exceeding:

1. Flame Spread 25

2. Smoke Developed 50

1.5 SYSTEM DESCRIPTION

A. A lightweight, non asbestos, UL classified, non combustible product, high temperature inorganic foil encapsulated ceramic fiber blanket duct wrap. Duct wrap system used on air duct systems shall allow a zero inch clearance to combustible construction and shall provide a 2 hour fire resistive rated enclosure system, shaft enclosures, when used with a listed or approved through-penetration protection system.

B. Performance Requirements:

1. Two-hour rated fire resistive enclosure assembly, ASTM E119: Large Scale Wall Test and Total Engulfment Test.

2. Non-Combustibility, ASTM E136

3. Class 1 interior finish materials, ASTM E84.

4. Zero inch clearance to combustibles, maximum allowable surface temperature on unexposed side, UL 1978.

1.6 SUBMITTALS

A. Submit test reports substantiating performance requirements and Code compliance.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original sealed containers or unopened packages, and clearly labeled with manufacturer’s name, product identification, and lot numbers.

B. Store materials out of weather and in an enclosed shelter fully protected from physical damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. Fire Resistive Duct Wrap materials:

a. Pyroscat FP, manufactured and supplied by Premier Refractories International

b. 3M Duct Wrap

c. Morgan Advanced Materials FireMaster Wrap

d. Or approved equal.

2.2 MATERIALS

A. Fire Resistive Duct Wrap: Duct Wrap: 1½ inches thick.

B. Tapes:

1. High Performance Filament Tape: One inch wide

2. Aluminum Foil Tape 2 mil thick: To seal cut edges of blankets.

C. Banding Material:

1. Two hour requirements: ¾ inch wide, no less than 0.015 inches thick, type 304 stainless steel.

D. Insulation Pins: 10 gage, 4 inches to 5 inches long, copper coated steel.

E. Speed Clips: 1½ inch diameter 0.016" thick stainless steel speed clip.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove and dirt and dust, and clean surfaces of openings and items penetrating rated floors and rated walls.

3.2 INSTALLATION

A. Install Duct Enclosure system in accordance with manufacturer’s instructions and referenced standards.

B. Install Duct Enclosure in direct contact with the duct it encloses. Protect every portion of duct including access doors with no less than 2 layers for 2-hour air duct enclosures. Overlap both perimeter and longitudinal joints minimum of 3" per layer of material. Filament tape is used as temporary hold on both layers until banding hardware is in place. Band exterior layer spaced minimum of 10.5" on center. For duct widths greater than 24", weld insulation pins to bottom, sides and vertical duct runs. Impale duct wrap over pins and secure with stainless steel speed clips until banding is applied.

C. In transition areas (at bends and elbows) and at access door openings, provide additional pins to assure integrity of the fire barrier. Perimeter of access door openings shall be sealed with approved, non-slump grade sealant.

D. Protect floor and wall penetrations with an approved through-penetrations firestopping system having an hourly rating not less than that of assembly penetrated and installed in accordance with manufacturer's instructions.

3.3 REPAIR PROCEDURE

A. Repair damaged Duct Enclosure in accordance with manufacturer's instructions.

B. Completely remove damaged section. Apply a new section of same direction. Place and fit ensuring same overlap that existed previously. Place banding around new material and tension to sufficiently hold in place.

C. If damage has penetrated to interior layer, the affected sections of duct be stripped and reinstalled as specified in INSTALLATION.

3.4 INSPECTION

A. Manufacturer's trained representative shall visit the site to verify that installation conform to manufacturer's requirements.

END OF SECTION 23 07 10

SECTION 23 07 20
ACOUSTICAL DUCT LINING AND DUCT WRAP

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Section 23 05 00, Common Work Results for HVAC.

B. Section 23 05 50, Basic Mechanical Materials and Methods.

1.3 SECTION INCLUDES

A. Ductwork acoustical lining.

B. Ductwork sound barrier acoustical wrap.

1.4 REFERENCES

A. ANSI/ASTM C553 - Mineral Fiber Blanket and Felt Insulation.

B. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

C. ASTM E84 - Surface Burning Characteristics of Building Materials.

D. NFPA 255 - Surface Burning Characteristics of Building Materials.

E. UL 723 - Surface Burning Characteristics of Building Materials.

1.5 QUALITY ASSURANCE

A. Applicator: Company specializing in ductwork acoustic lining application with three years minimum experience.

1.6 SUBMITTALS

A. Submit product data under provisions of General Conditions.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions under provisions of General Conditions.

D. Approval of the above named products is contingent upon samples to be submitted to the Commissioner. Also, after approval, contractor shall furnish to the job site a section of the material applied to a 24 x 24 section of sheetmetal. This will be maintained at the job site for quality control.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Acoustical Duct Lining Materials: The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. Owens Corning Aeroflex
2. Manville Linacoustic
3. CertainTeed Ultralite 150.
4. Or approved equal.

B. Sound Barrier Acoustical Wrapping: The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. EAR - TUFCOTE barrier absorber composite;
2. Sound Coat - Soundmat PB embossed;
3. Sound Seal - Barrier/fiberglass Type BSC-25;
4. Kinetics - Barrier composite KBC - 100QQ
5. Or approved equal.

2.2 MATERIALS DUCT LINING

A. Acoustical Duct Lining density shall be 1½ lb. per cubic foot, minimum thickness of 1", unless specified greater.

B. Lining shall have a composite fire and smoke hazard rating (UL 723) not exceeding:

1. Flame Spread: 25
2. Smoke Developed: 50

C. Asbestos shall not be used in the manufacture of lining products.

D. Film lining shall be pre-formed polyvinyl fluoride film, 1.5 mil thick. The film lining shall be placed on the airstream face of the acoustical duct lining material. Provide a perforated metal inner duct liner (as specified herein) for full extent of acoustical lining.

2.3 SOUND BARRIER WRAPPING

A. Ductwork shall be fully wrapped with acoustical barrier/absorber lagging material, as specified herein, as shown on the drawings, or as required.

B. Acoustical barrier/absorber lagging material construction must meet the following requirements:

1. Material to consist of one barrier layer sandwiched between either two sound absorbing layers, or one sound absorbing layer and one decoupling layer.

2. Minimum barrier layer density of 1 lb/ft2

3. Minimum absorber layer thickness of 1" (each layer).

4. Minimum decoupling layer thickness of 1" (each layer).

5. Minimum absorbing layer NRC rating of 0.75.

6. Minimum composite material STC rating of STC-24.

C. Acoustical barrier/absorber lagging material shall meet all applicable flammability, chemical resistance, temperature resistance, and wear requirements.

D. Ducts shall be fully wrapped with lagging material on all sides, leaving no gaps, holes, or open areas exposed. Lagging material may be fixed and sealed with tape meeting all applicable flammability and resistance requirements, or another suitable method as provided or recommended by the lagging manufacturer.

E. Acoustical barrier/absorber lagging submittal drawings shall include the following information:

1. Decoupling and Sound Absorbing layer(s) material and thickness.

2. Barrier layer material, thickness and density.

3. Overall material construction STC rating and MRC rating.

F. Asbestos shall not be used in the manufacture of wrapping products.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean surfaces before applying adhesives.

3.2 INSTALLATION

A. The contractor shall make all necessary repairs to the lining where improperly applied, or damaged.

B. Duct sizes shown on drawings shall be considered as clear inside dimensions.

C. A perforated inner metal liner consisting of 22 ga. galv. steel with 3/32" dia. holes on 3/16" or 1/4" centers or the equivalent aluminum shall be installed in every one of the following conditions. (Fastening for metal liners shall only be by welded stud. Where duct cross section exceeds 48" the top section shall be fastened with twice the amount of clips.)

1. Where shown on drawings.

2. Where called for elsewhere in these documents.

3. Where the duct can be walked on, metal liners shall be used on bottom portions.

4. Where the velocity in the duct exceeds 3500 FPM.

5. Where polyvinyl lining is also provided.

D. The leading edge of acoustical duct liner (facing into the air flow) of each non abutting section such as the first section facing into the fan, or the first section after a sound trap, or ducts having a velocity in excess of 3,500 FPM shall have a metal nosing.

E. All portions of duct designated to receive acoustical duct liner shall be completely covered with acoustical duct liner. Transverse joints shall be neatly butted and there shall be no interruptions or gaps. The black coated surface of the acoustical duct liner shall face the air stream. The acoustical duct liner shall be adhered to the sheet metal with 100% coverage of adhesive and all exposed leading edges and all transverse joints coated with adhesive. Adhesive shall conform to Adhesive and Sealant Council Standards for Adhesives for duct liner; ASC-C-7001C-1972. The acoustical duct liner shall be additionally secured with mechanical fasteners (Mechanical fasteners shall conform to Mechanical Fastener Standard MF-1-l971, available from Sheet Metal and Air Conditioning Contractors National Association), except that gripnails or the equivalent shall not be allowed. Acoustical duct liner shall be cut to assure overlapped and compressed longitudinal corner joints. Fasteners shall start within 3" of the upstream transverse edges of the liner and 3" from the longitudinal joints and shall be spaced as recommended by SMACNA.

3.3 SCHEDULE

A. The following items shall be acoustically lined. Where distances of lining are indicated, the intent is that all ductwork in any direction be acoustically lined.

1. Ductwork downstream of terminal units a minimum distance of 10 feet.

2. Built-up casings and plenums, except that lining shall be 2" thick, and add inner metal liner.

3. All supply air ductwork a distance of 25 feet from fan discharge. If the distance from fan discharge to mechanical equipment room wall is more than 25 feet continue acoustical lining to the mechanical equipment room wall.

4. All conditioned air supply ductwork from roof top units to a distance of 25 feet from fan discharge. If the distance from fan discharge to roof or wall penetration is less than 25 feet, continue acoustic lining to a distance of 25 feet from fan discharge.

5. Upstream of return fans and exhaust fans, a minimum distance of 10 feet.

6. Upstream of outside air supply fans, a minimum of 15 feet.

7. Downstream from exhaust fans a minimum of 10 feet if the discharge of the exhaust fan runs through occupied spaces.

8. Where shown on drawings.

B. The following items shall, in addition to being acoustically lined (as specified above), shall also be provided with polyvinyl inner lining. For distances of lining, see above.

1. All supply air ductwork located downstream of the AC unit.

2. Supply air terminal boxes.

3. Where shown on the drawings.

C. The following items shall, in addition to be being acoustically lined (as specified above), shall also be wrapped with a flexible sound barrier acoustical material:

1. Downstream of supply fans for a distance of 25 feet.

2. Upstream of return fans for a distance of 25 feet.

END OF SECTION 23 07 20

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SECTION 23 08 00
COMMISSIONING OF HVAC SYSTEMS

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 commissioning process requirements for HVAC&R systems, assemblies, and equipment.

B. Related Sections:

1. DDC General Conditions for general commissioning process requirements.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of verifying that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City of New York with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of the Contractor to provide a complete design or installing Sub-Contractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City of New York.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing Sub-Contractors.

2. Verify and document proper performance of equipment and systems as per the written procedures.

3. Verify that Operation & Maintenance documentation is complete and transferred to City of New York.

4. Verify that proper orientation program has been implemented for the City of New York's operating personnel.

5. Provide a post occupancy review within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the Commissioner, and Contractor. The Contractor shall ensure participation of the Sub-Contractors, manufacturers, and equipment suppliers as required.

E. The Cx process shall not reduce the responsibility of the Contractor to comply with the Contract Documents.

1.4 DEFINITIONS

A. Refer to DDC General Conditions for definitions.

1.5 SUBMITTALS

A. Refer to DDC General Conditions for CxA's role.

B. Refer to DDC General Conditions for specific submittal requirements. In addition, provide the following:

1. Certificates of readiness
2. Certificates of completion of installation, pre-start, and startup activities.
3. O&M manuals
4. Field / factory test reports

C. Control Drawings Submittal

1. The control drawings shall have a key to all abbreviations.
2. The control drawings shall contain graphic schematic depictions of the systems and each component.
3. The schematics will include the system and component layout of any equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.
4. Provide a full points list with at least the following included for each point, as applicable:
   a. Controlled system
   b. Point abbreviation
   c. Point description
   d. Display unit
   e. Control point or set point
   f. Monitoring point
   g. Intermediate point
   h. Calculated point

1.6 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: The Contractor will comply with test manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

1.7 COORDINATION

A. Refer to DDC General Conditions for requirements pertaining to coordination during the commissioning process.

PART II - PRODUCTS

2.1 TEST EQUIPMENT

A. The Contractor shall ensure that the equipment and system perform startup, initial checkout and functional performance testing as outlined in the DDC General Conditions. For example, the Contractor shall ultimately be responsible for all standard testing equipment for the mechanical systems and control systems in Division 23. A sufficient quantity of two-way radios shall be provided by the Contractor, as necessary.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included and left on site, at no additional cost to the City of New York, except for stand-alone data logging equipment that may be used by the CxA.

C. 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. The Contractor shall ensure that the manufacturer provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Test equipment (and software) shall become the property of the City of New York upon completion of the commissioning process.

D. If required and necessary, data logging equipment and software required for testing will be provided by the CxA, but shall not become the property of the City of New York.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to accuracy of 0.5˚F and a resolution of ±0.1˚F. Pressure sensors shall have an accuracy of ±2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.

PART III - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the Contractor, the CxA will prepare Pre-Functional/ Installation Checklists for commissioned components, equipment, and systems

B. The Contractor shall cause Sub-Contractor(s) to create red-lined Drawings:

1. The Contractor will verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.

2. Preliminary red-lined drawings will be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.

3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.

4. The Sub-Contractor(s) will create the as-built drawings.

C. Operation and Maintenance Data:

1. The Contractor shall cause the Sub-Contractor(s) to provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements.
3. The CxA will receive a copy of the final approved O&M literature once corrections have been made by the Contractor.

D. Testing, Demonstration and Orientation:

1. The Contractor shall cause the Sub-Contractor(s) to provide demonstration and operator's orientation program as required by the specifications.
2. A complete orientation program and schedule must be submitted by the Contractor to the CxA four weeks (4) prior to any such event.
3. Agenda for each orientation session shall be submitted to the CxA at least one (1) week prior to the session.
4. The CxA shall be notified at least 72 hours in advance of scheduled tests so that testing may be observed by the CxA. A copy of the test record shall be provided to the CxA and Commissioner.
5. Engage a Factory-authorized service representative to demonstrate City of New York's service personnel to adjust, operate, and maintain specific equipment.
6. Instruct City of New York service personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review and update data in O&M Manuals.

3.2 CONTRACTOR RESPONSIBILITIES FOR SUB-CONTRACTOR PERFORMANCE

A. The Contractor shall cause the Sub-Contractor to have the following instruction responsibilities in performing Mechanical, Controls and TAB work. The commissioning responsibilities are as follows (all references apply to commissioned equipment/systems only):

1. Perform commissioning tests at the direction of the CxA.
2. Attend construction phase controls coordination meetings.
3. Attend testing, adjusting, and balancing review and coordination meetings.
4. Participate in HVAC&R systems, assemblies, equipment, and component service orientation and inspection as directed by the CxA.
5. Provide information requested by the CxA for final commissioning documentation.
6. Include requirements for submittal data, operation and maintenance data, and instruction in each purchase order or sub-contract written.
7. Prepare preliminary schedule for Mechanical system orientations and inspections, operation and maintenance manual submissions, instruction sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, testing and balancing and task completion for the City of New York. Distribute preliminary schedule to commissioning team members.

8. Update schedule as required throughout the construction period.
9. During the startup and initial checkout process, execute the related portions of the Prefunctional/installation checklists for all commissioned equipment so they can be documented by the CxA.
10. Assist the CxA in all verification and functional performance tests.
11. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.
12. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA (45) days after submittal acceptance.
13. Coordinate with the CxA to provide (72) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.
14. Notify the CxA a minimum of (2) weeks in advance of the time for start of the testing and balancing work. Attend the initial testing and balancing meeting for review of the official testing and balancing procedures.
15. Participate in, and schedule vendors and required Sub-Contractors to participate in the operator's orientation sessions.
16. Provide written notification to the CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.

    a. HVAC&R equipment including all fans, air handling units, piping, ductwork, dampers, terminals, and all other equipment furnished under this Division.

    b. Controls system used for equipment monitoring and manipulation

    c. Fire stopping in the fire rated construction, including fire and smoke damper installation, caulking, gasketing and sealing of smoke barriers.

    d. Fire detection and smoke detection devices furnished under other divisions of the specification.
17. The Contractor shall ensure that the equipment suppliers document the performance of their equipment.
18. The Contractor shall ensure that the Sub-Contractor performs Test, Adjust and Balance work:

    a. Attend initial commissioning coordination meeting scheduled by the CxA.

    b. Submit the site specific testing and balancing plan to the CxA and Commissioner for review and acceptance.

    c. Attend the testing and balancing review meeting scheduled by the CxA. Be prepared to discuss the procedures that shall be followed in testing, adjusting, and balancing the HVAC&R system.

    d. At the completion of the testing and balancing work, and the submittal of the final testing and balancing report, notify the Commissioner.

    e. Participate in verification of the testing and balancing report, which will consist of repeating measurements contained in the testing and balancing reports. Assist in diagnostic purposes when directed.

19. The Contractor shall ensure equipment Suppliers perform the following tasks:
    a. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City of New York, to keep warranties validated.
    b. Assist in equipment testing per agreements with Sub-Contractors.
    c. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.
20. Provide instruction of the City of New York service personnel using qualified personnel, as specified.
21. Refer to DDC General Conditions for additional responsibilities.

3.3 CxA RESPONSIBILITIES

A. Refer to DDC General Conditions for CxA's Responsibilities.

3.4 TESTING PREPARATION

A. Certify in writing to the CxA that HVAC&R systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that HVAC&R instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that testing, adjusting, and balancing procedures have been completed and that testing, adjusting, and balancing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.5 TESTING, ADJUSTING AND BALANCING VERIFICATION

A. Air and water testing, balancing and equipment performance verification shall be accomplished by an independent test and balance firm. The CxA shall spot check this work to verify accuracy of results.

B. Prior to performance of Testing, Adjusting and Balancing work, provide copies of reports, sample forms, checklists, and certificates to the CxA.

C. Notify the CxA at least ten (10) days in advance of testing and balancing work, and provide access for the CxA to witness testing and balancing work.

D. Provide technicians, instrumentation, and tools to verify testing and balancing of HVAC&R systems at the direction of the CxA.

1. The CxA will notify the Contractor and Sub-Contractor performing balancing work ten (10) days in advance of the date of field verification. Notice will not include data points to be verified.
2. The Contractor shall ensure that the Sub-Contractor performing balancing work shall use the same instruments (by model and serial number) that were used when original data were collected.
3. Failure of an item includes a deviation of more than 10 percent. Failure of more than 10 percent of selected items shall result in rejection of final balancing report.
4. Remedy the deficiency and notify the CxA so verification of failed portions can be performed.

3.6 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of HVAC&R testing shall include entire HVAC&R installation, from central equipment for heat generation and refrigeration through distribution systems to each conditioned space. Testing shall include verification of dynamic operation of the system.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The CxA along with the Contractor, the Sub-Contractor performing HVAC&R, the Sub-Contractor performing testing and balancing, and the Sub-Contractor performing HVAC&R Instrumentation and Control work shall prepare detailed testing plans, procedures, and checklists for HVAC&R systems, subsystems, and equipment. The Contractor shall ensure participation of the Sub-Contractors, as required.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxA and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct to alter set points when simulating conditions is not practical.

H. The CxA may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

I. If tests cannot be completed because of a deficiency outside the scope of the HVAC&R system, document the deficiency and report it to the Commissioner. After deficiencies are resolved, reschedule tests.

J. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.7 HVAC&R SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing requirements are specified in individual Division 23 sections. Provide submittals, test data, inspector record, and certifications to the CxA.

B. HVAC&R Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in Division 23 Sections. Assist the CxA with preparation of testing plans.

C. Pipe system cleaning: flushing, hydrostatic tests, and chemical treatment: Test requirements are specified in Division 23 piping Sections. The Contractor shall ensure that the Sub-Contractor performing HVAC&R work shall prepare a pipe system cleaning, flushing, and hydrostatic testing plan. Provide cleaning, flushing, testing, and treating plan and final reports to the CxA. Plan shall include but not limited to the following:

1. Sequence of testing and testing procedures for each section of pipe to be tested, identified by pipe zone or sector identification marker. Markers shall be keyed to Drawings for each pipe sector, showing the physical location of each designated pipe test section. Drawings keyed to pipe zones or sectors shall be formatted to allow each section of piping to be physically located and identified when referred to in pipe system cleaning, flushing, hydrostatic testing, and chemical treatment plan.
2. Description of equipment for flushing operations.
3. Minimum flushing water velocity.
4. Tracking checklist for managing and ensuring that all pipe sections have been cleaned, flushed, hydrostatically tested, and chemically treated.

D. Refrigeration System Testing: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of chillers, cooling towers, refrigerant compressors and condensers, heat pumps, and other refrigeration systems. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested.

E. HVAC&R Distribution System Testing: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of air, steam, and hydronic distribution systems; special exhaust and other distribution systems, including HVAC&R terminal equipment and unitary equipment.

F. Vibration and Sound Tests: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

G. Vibration Analysis and Sound Level Testing: The Contractor shall cause the Sub-Contractor to prepare a vibration analysis and sound level testing plan for identified rotating equipment. The Contractor to coordinate witnessing of testing with CxA.

H. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and sub-systems. The equipment and systems shall be evaluated shall include, but not limited to:

1. HVAC systems
2. Boilers
3. Building Automation System
4. Ductwork and accessories
5. Heating Hot Water System
6. Testing, Adjusting and Balancing

7. Ventilating Fans

3.8 SEASONAL TESTING

A. Refer to DDC General Conditions for requirements for seasonal testing procedures.

3.9 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Document requirements.

B. Refer to the DDC General Conditions for the Contractor and CxA's role in the Operation and Maintenance Manual contribution, review and approval process.

C. An updated as-built version of the control drawings and sequences of operation shall be included in the final controls O&M manual submittal.

3.10 CITY OF NEW YORK'S SERVICE PERSONNEL ORIENTATION

A. Refer to the DDC General Conditions for requirements pertaining to instruction.

B. The Contractor shall cause the respective Sub-Contractor to have the following instruction responsibilities:

1. Provide the CxA with an instruction plan two weeks before the planned instruction.

2. Provide the City of New York service personnel with comprehensive orientation and instruction in the understanding of the systems and the operation and service of each piece of HVAC equipment including, but not limited to, all HVAC equipment (ex. pumps, heat exchangers, chillers, heat rejection equipment, air conditioning units, air handling units, fans, terminal units, controls and water treatment systems, etc.)

3. Instruction shall normally start with classroom sessions followed by hands-on instruction on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.

4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

5. The Contractor shall ensure that the appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installer or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the instruction.

6. The Contractor shall ensure that the Sub-Contractor shall attend instruction sessions other than their respective instruction sessions, as requested, to discuss the interaction of various systems as it relates to the equipment being covered in the instruction session.

7. The instruction sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference. Instruction shall include but not limited to:

a. Use of the printed installation, operation and service instruction material included in the O&M manuals.

b. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare

parts inventory suggestions. The instruction shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.

c. Discussion of relevant health and safety issues and concerns.

d. Discussion of warranties and guarantees.

e. Common troubleshooting problems and solutions.

f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.

g. Discussion of any peculiarities of equipment installation or operation.

h. The format and instruction agenda in The HVAC Commissioning Process, ASHRAE Guideline 1-2007, is recommended.

8. Hands-on instruction shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.

9. Fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.

10. Instruction shall occur after functional testing is complete, unless approved otherwise by the Commissioner.

C. Control System Work: The Contractor shall have the following instruction responsibilities:

1. Provide the CxA and the Commissioner with an instruction plan four weeks before the planned instruction.

2. Provide designated City of New York service personnel instruction on the control system in this facility. The intent is to clearly and completely instruct the City of New York on all the capabilities of the control system.

3. Instruction manuals: The standard operating manual for the control system and any special instruction manuals will be provided for each employee, with three extra copies left for the O&M manuals. In addition, copies of the control system technical manual will be demonstrated during instruction and three copies submitted with the O&M manuals. Manuals shall include detailed description of the subject matter for each session. The manuals will cover all control sequences and have a definitions section that fully describes all relevant words used in the manuals and in all software displays. Manuals will be approved by the CxA. Copies of audiovisuals shall be delivered to the City of New York.

4. The instruction sessions will be tailored to the needs and skill-level of the instructees.

5. The instructors will be knowledgeable on the system and its use in buildings. For the on-site sessions, the most qualified instructor(s) will be used. The Commissioner shall approve the instructor prior to scheduling the instruction.

6. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

7. The Contractor shall ensure that the Sub-Contractor shall attend sessions other than the controls instruction, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.

8. Three (3) instruction sessions shall be provided:

a. Instruction Session I, Control System: The first instruction session shall consist of 8 hours of actual instruction. This instruction may be held on-site or in the supplier's facility. If held off-site, the instruction may occur prior to final completion of the system installation. Upon completion, each employee, using appropriate documentation, should be able to perform elementary operations and describe general hardware architecture and functionality of the system.

b. Instruction Session II, Building Systems: The second session shall be held on-site for a period of 8 hours of actual hands-on instruction after the completion of system commissioning. The session shall include instruction on:

1) Specific hardware configuration of installed systems in this building and specific instruction for operating the installed system, including HVAC systems, lighting controls and any interface with security and communication systems.

2) Security levels, alarms, system start-up, shut-down, power outage and restart routines, changing set points and alarms and other typical changed parameters, overrides, freeze protection, manual operation of equipment, optional control strategies that can be considered, energy savings strategies and set points that if changed will adversely affect energy consumption, energy accounting, procedures for obtaining vendor assistance, etc.

3) All trending and monitoring features (values, change of state, totalization, etc.), including setting up, executing, downloading, viewing both tabular and graphically and printing trends. Instructees will actually set-up trends in the presence of the instructor.

4) Every display screen shall be completely discussed, allowing time for questions.

5) Use of keypad or plug-in laptop computer at the zone level.

6) Use of remote access to the system via phone lines or networks.

7) Setting up and changing an air terminal unit controller.

8) Graphics generation.

9) Point database entry and modifications.

10) Understanding of field control panel operating programming (when applicable)

c. Instruction Session III, Operational Q&A: The third instruction session shall be conducted on-site six months after occupancy and consist of 8 hours of instruction. The session will be structured to address specific topics that instructees need to discuss and to answer questions concerning operation of the system.

D. Test, Adjust and Balance Work: The TAB Sub-Contractor shall have the following instruction responsibilities:

1. Meet with facility staff after completion of Test, Adjust and Balance work and instruct them on the following:

a. Review the final Test, Adjust and Balance report, explaining the layout and meanings of each data type.

b. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.

c. Identify and discuss any terminal units, duct runs, diffusers, coils, fans and pumps that are not meeting their design capacity.

d. Discuss any temporary settings for any areas that are not finished, and plans to finish the areas.

e. Other salient information that may be useful for facility operations, relative to Test, Adjust and Balance work.

END OF SECTION 23 08 00

SECTION 23 09 95
ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. This Section includes the furnishing of AC individually enclosed motor controllers rated 600 V and less of the following types:

1. Across-the-line, manual and magnetic controllers.

2. Reduced-voltage controllers.

3. Multispeed controllers.

B. Related Sections include the following:

1. Division 23, Section 23 05 15 “Variable Frequency Controllers”

1.3 SUBMITTALS

A. Product Data: Include dimensions and manufacturer’s technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each enclosed controller.

1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:

a. Enclosure types and details.

b. Nameplate legends.

c. Short circuit current rating of integrated unit.

d. UL listing for series rating of overcurrent protective devices in combination controllers.

e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices in combination controllers.

2. Wiring Diagrams: Power, signal and control wiring.

C. Maintenance Data: For enclosed controllers and components to include in maintenance manuals specified in General Conditions.

D. Load-Current and Overload-Relay Heater List: Compile after motors have been installed and arrange to demonstrate that selection of heaters suits actual motor nameplate full-load currents.

E. Load-Current and List of Settings of Adjustable Overload Relays: Compile after motors have been installed and arrange to demonstrate that dip switch settings for motor running overload protection suit actual motor to be protected.

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide products specified in this Section that are Underwriters Laboratories listed and labeled.

1. The terms "listed" and "labeled" shall be defined as they are in the National Electrical Code, Article 100.

B. Single Source Responsibility: Obtain similar motor control devices from a single manufacturer.

C. Comply with NFPA 70, as amended by NYC DOB and FDNY.

1.5 COORDINATION

A. Coordinate features of enclosed controllers and accessory devices with pilot devices and control circuits to which they connect.

B. Coordinate features, accessories, and functions of each enclosed controller with ratings and characteristics of supply circuit, motor, required control sequence, and duty cycle of motor and load.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. ABB Power Distribution, Inc.; ABB Control, Inc. Subsidiary.

2. Eaton Corporation; Cutler-Hammer Products.

3. General Electrical Company; GE Industrial Systems.

4. Siemens/Furnas Controls.

5. Square D.

6. Or approved equal

2.2 ACROSS-THE-LINE ENCLOSED CONTROLLERS

A. Manual Controller: NEMA ICS 2, general purpose, Class A, with "quick-make, quick-break" toggle or pushbutton action, and marked to show whether unit is "OFF," "ON," or "TRIPPED."

1. Overload Relay: Ambient-compensated type with inverse-time-current characteristics and NEMA ICS 2, Class 10 tripping characteristics. Relays shall have heaters and sensors in each phase, matched to nameplate, full-load current of specific motor to which they connect and shall have appropriate adjustment for duty cycle.

B. Combination Magnetic Controller: Factory-assembled combination controller and disconnect switch. Padlockable in open position.

1. Fusible Disconnecting Means: NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 947-4-1, as certified by a Nationally Recognized Testing Laboratory.

2. Circuit-Breaker Disconnecting Means: NEMA AB 1, motor-circuit protector with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.

3. Nonfusible Disconnecting Means: NEMA KS 1, heavy-duty, nonfusible switch.

2.3 REDUCED-VOLTAGE ENCLOSED CONTROLLERS

A. Controller includes control circuit, overload relay, and disconnecting means as specified above for across-the-line enclosed controllers.

2.4 MULTISPEED ENCLOSED CONTROLLERS

A. Multispeed Enclosed Controller: Match controller to motor type, application, and number of speeds; include the following accessories:

1. Compelling relay to ensure that motor will start only at low speed.

2. Accelerating relay to ensure properly timed acceleration through speeds lower than that selected.

3. Decelerating relay to ensure automatically timed deceleration through each speed.

2.5 RATINGS

A. Controllers bear U.L. short circuit ratings of 100,000 amps with appropriate line side fuses on a series rated basis, and are labeled accordingly.

2.6 WIRING

A. Wiring within controller is copper.

2.7 ENCLOSURES

A. Description: Surface mounted cabinets. NEMA 250, Type 1, unless otherwise indicated to comply with environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 3R.

2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

B. Covers are interlocked with disconnecting means.

2.8 ACCESSORIES

A. Devices are factory installed in controller enclosure, unless other indicated.

B. Push-Button Stations, Pilot Lights, and Selector Switches: NEMA ICS 2, heavy-duty type. Selector switches are key operated, with key removable only in “Remote” or “Auto” position as applicable.

C. Relays: Provide auxiliary and adjustable time-delay relays as follows:

1. Auxiliary control circuit relay for each magnetic controller NEMA Size 1 and larger, arranged to prevent holding coil currents into the external control circuit.

2. Phase-failure and undervoltage relay for each magnetic controller size 5 and larger. Adjustable undervoltage setting.

3. Time delay relay for each magnetic motor controller 10 HP and larger. Adjustable time closing from 0.05 to 180 seconds, arranged to delay motor starting.

4. Undervoltage lockout relay for magnetic controllers where so indicated on drawings.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Select features of each enclosed controller to coordinate with ratings and characteristics of supply circuit and motor; required control sequence; duty cycle of motor, drive, and load; and configuration of pilot device and control circuit affecting controller functions.

B. Select horsepower rating of controllers to suit motor controlled.

C. Use fractional-horsepower manual controllers for single-phase motors, unless otherwise indicated.

D. Hand-Off-Automatic (and Hand-Off-Remote) Selector Switches: Except as otherwise indicated, factory install in covers of manual and magnetic controllers of motors started and stopped by central control system and/or automatic controls or interlocks with other equipment. Make control connections so only the manual and automatic control devices that have no safety functions will be bypassed when the switch is in the hand position. Connect motor control circuit in both hand and automatic positions for safety type control devices such as low - and high - pressure cutouts, high temperature cutouts, and motor overload protectors. Switches are of the key-operated cylinder lock type, with key removable only in auto (remote) position. All locks are keyed alike.

E. Pushbutton Stations: Except as otherwise indicated, momentary-contact, start-stop units. Provide in covers of magnetic controllers for manually started motors where indicated, and connect start contact in parallel with sealing auxiliary contact for low voltage protection.

3.2 INSTALLATION

A. Installation of motor controllers will be performed as part of the work of Division 26 (Electrical).

B. Installation of motor control devices will be performed as part of the work.

3.3 CONTROL WIRING

A. Control wiring for the mechanical alarm panel is provided as part of the work of Division 23.

B. Control wiring is accomplished utilizing #14 AWG copper conductor with THWN insulation as specified in Division 26, Section 26 05 19 "Conductors and Cables", run in conduit as specified for feeders in Division 26, Section 26 05 33 "Raceways and Boxes".

C. Any necessary field installed make-up wiring within motor controller enclosures as required to incorporate the contained devices and accessories into the control scheme will be provided as part of the electrical work.

END OF SECTION 23 09 95

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SECTION 23 31 13
METAL DUCTWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Related Sections: The following sections contain requirements that relate to this section:

1. Section 23 05 00 - Common Work Results for HVAC.
2. Section 23 05 50 - Basic Mechanical Materials and Methods.
3. Section 23 07 00 - HVAC Insulation.
4. Section 23 37 15 - Air Distribution Devices.
5. Division 26 - Electrical.

1.3 SECTION INCLUDES

A. This section includes all the rectangular, round and flat-oval metal ducts and plenums for the complete heating, ventilating and air conditioning systems in all pressure classes. In addition, this section includes the following:

1. Sheet Metal
2. Round and Flat Oval Ducts
3. Flexible Air Duct
4. Air Casings and Plenums
5. Air Casings and Plenums (Acoustical Type)
6. Dampers for Balancing
7. Sheet Metal Access Doors in Sheet Metal Work
8. Inspection Portholes

9. Pressure Sensitive

10. Flexible Connections

11. Air Intakes and Discharges

12. Refer to Section 23 37 15 Air Distribution Devices for air distribution devices and accessories required in conjunction with this work.

13. Leakage testing, Air Distribution System.

1.4 REFERENCES

A. SMACNA.

B. ASHRAE.

C. NFPA.

D. International Mechanical Code.

1.5 QUALITY ASSURANCE

A. Qualify welding processes and welding operators in accordance with AWS.D1.1 “Structural Welding Code - Steel” for hangers and supports and SWS.D9.1 “Sheet Metal Welding Code.”

B. Qualify each welder in accordance with AWS qualification tests. Certify that their qualifications are current.

C. NFPA Compliance: Comply with the following NFPA Standards:

1. NFPA 90A, “Standard for the Installation of Air Conditioning and Ventilating Systems,” except as indicated otherwise.

D. SMACNA - HVAC Duct Construction Standards, Latest Edition.

E. SMACNA - “Guidelines for Welding Sheet Metal”.

F. At the discretion of the Commissioner, sheet metal gauges and reinforcing may be checked at various times to verify all duct construction is in compliance. If upon inspections, changes have been made without prior approval, the contractor will make the applicable changes to comply with this specification, at the contractor’s expense.

1.6 SUBMITTALS

A. Submit product data under provisions of General Conditions.

B. Submit duct fabrication standards and methods of installation, in compliance with SMACNA and these specifications, for review by Commissioner. Clearly indicate the combination of metal gauges and reinforcement intended for each pressure classification. Duct fabrication shall not be allowed until a satisfactory review of this Standard has been performed.

C. Include product description, list of materials for each service, and locations.

D. Product data including details of construction relative to materials, dimensions of individual components, profiles, and finishes for the following items:

1. Duct liner.

2. Sealing Materials.

3. Fire-Stopping Materials.

4. Dampers, turning vanes, access doors, plenums, flexible connectors, etc.

E. Shop drawings from duct fabrication shop, drawn to scale not smaller than 3/8 inch equals 1 foot, detailing:

1. Fabrication, assembly and installation details, including plans, elevations, sections, details of components, and attachments to work by other trades.

2. Duct layout for all areas of work, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate the classification of the materials handled as defined in this Section.

3. Fittings.

4. Reinforcing details and spacing.

5. Seam and joint construction details.

6. Penetrations through fire-rated and other partitions.

7. AC unit, equipment, terminal unit, coil installations.

8. Hangers and supports, including methods for building attachment, seismic restraint, vibration isolation, and duct attachment.

F. Welding certificates including welding procedures specifications, welding procedures qualifications test records, and welders qualifications test records complying with requirements specified in “Quality Assurance” above.

G. Maintenance data for volume control devices, fire dampers, in accordance with Division 23 Section 23 05 00 “Common Work Results for HVAC” and General Conditions.

H. The Contractor shall submit all fan room sheet metal ductwork shop drawings to the AC unit manufacturer prior to submission to Commissioner for review. AC unit manufacturer shall approve the air performance and acoustical performance of the AC units in the location and with the ductwork configuration and construction as shown on the shop drawings. AC unit manufacturer shall indicate approval directly on the ductwork shop drawing.

1.7 DEFINITIONS

A. Sealing Requirements Definitions: For the purposes of duct systems sealing requirements specified in this Section, the following definitions apply.

1. Seams: A seam is defined as jointing of two longitudinally (in the direction of airflow) oriented edges of duct surface material occurring between two joints. All other duct surface connections made on the perimeter are deemed to be joints.

2. Joints: Joints include girth joints, branch and subbranch intersections; so-called duct collar tap-ins; fitting subsections, louver and air terminal connection to ducts; access door and access panel frames and jambs; duct, plenum and casing abutments to building structures.

1.8 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide a duct system with minimum resistance to airflow. Take-offs shall be throated and transitions made as gradual as possible. 'Bullhead' or sharp take-offs are not acceptable. Branch take-offs shall be 45 deg entry type. Straight tap or butt flanged connections are not acceptable. Clinch lock connections are preferred.

B. The duct system design, as indicated, has been used to select and size air moving and distribution equipment and other components of the air system. Changes or alterations to the layout or configuration of the duct system must be specifically approved in writing by the Commissioner. Accompany requests for layout modifications with calculations showing that the proposal layout will provide the original design results without increasing the system total pressure.

PART 2 - PRODUCTS

2.1 GENERAL

A. Duct dimensions indicated on drawings are clear, inside dimensions. The sheet metal dimensions shall be increased to accommodate internal liner where liner is required.

B. Drawings are diagrammatic and indicate the arrangement of the principal apparatus, ductwork and piping and shall be followed as closely as possible. All offsets, rises, drops, fittings and accessories are not indicated on drawings, but shall be provided as required to install system. Carefully investigate structure, finish conditions, and the work of other sections affecting sheet metal work, including work associated with testing, adjusting and balancing, in order to arrange all items accordingly. Provide best possible arrangement so as to provide maximum headroom and maintenance clearances.

C. In addition to sheet metal ductwork specified herein, furnish and install, or install as furnished by other sections, accessories and devices including air distribution devices, smoke detectors, plenums, canopy hoods, and blank-off panels at unused louver areas.

D. Furnish and install intake and exhaust plenums attached to louvers.

E. Except as noted, all reinforcement shall be external.

2.2 SHEET METAL

A. Duct systems shall be galvanized steel and shall comply with the pressure classifications following in compliance with Page 1-18 to Page 1-31 inclusive of SMACNA HVAC Duct Construction Standards, latest edition. Duct sealants shall have a U.L. label and shall have a flame spread rating not over 25, and a smoke developed rating no higher than 50 when in the final dry state.

Duct System	SMACNA Table No.	SMACNA Pressure Classification	SMACNA Seal Classification
All supply duct on systems without VAV terminal boxes from fan discharge to diffuser, and all ductwork downstream of VAV boxes to diffusers.	1-5	+3 W.G.	B
All return ducts and exhaust ducts.	1-6	-3" W.G.	A

2.3 ROUND AND FLAT OVAL DUCTS

A. Construction: In accordance with HVAC Duct Construction Standards as specified above.

B. Round ductwork shall be spiral seam construction. Gauges and fittings shall be in accordance with SMACNA Duct Construction Standard (as referenced above).

C. Elbows, tees and branch take-offs shall be made of similar material to round straight ductwork.

2.4 FLEXIBLE AIR DUCT

A. Flexible Air Duct:

1. Flexible air ducts shall be all metal construction consisting of a core of stranded triple lock metal flexible ducting for strength and airtightness. The ducting shall have applied at the factory a UL listed glass or mineral wool insulating blanket, sheathed in a UL approved seamless exterior vapor barrier jacket. Flexible air ducts shall be semi-rigid construction capable of being easily hand pre-formed into required elbows or offsets to suit job conditions without subsequent sagging or droop. Duct connections to equipment outlet collars shall be made in accordance with the duct manufacturer's recommendations. Flexible duct shall be Flexmaster Triple Lock Type V as manufactured by Flexmaster U.S.A. Corporation, Z-FLEX Triple Lock Aluminum flex duct, Westaflex, or approved equal.

2. The insulation material shall have composite fire and smoke hazard ratings of 50/25.

3. The flexible air ducts shall be rated for an operating temperature range of -40°F to +250°F and an operating pressure of 12" w.g.

4. The complete assembly shall have been tested by Underwriters Laboratories Inc. and given the listing 181 Class I duct material, and comply with NFPA 90A and 90B.

5. The joint shall consist of a triple lock that is mechanically performed without the use of adhesives to make a durable, airtight seam. A double lock is not acceptable.

6. Length of flexible duct shall be as shown on the drawings but shall not exceed length dictated by NYC DOB.

7. Bends shall be made with not less than 1 duct diameter centerline radius. Ducts should extend a few inches beyond the end of a sheet metal connection before bending. Ducts should not be compressed.

8. Cut duct to proper length to avoid sharp bends.

2.5 DAMPERS FOR BALANCING

A. Provide manual dampers for balancing the air systems, as specified in Section 23 33 13 "Dampers".

B. Construction shall conform to latest SMACNA standards. When installing dampers in ducts to be insulated provide raised bracket for damper quadrant with height equal to insulation thickness.

C. Provide volume dampers in branch take-offs and in main branches and ducts of all ductwork systems (supply, return and exhaust)for properly regulating and balancing airflow to all terminal outlets, whether indicated on drawings or not.

1. Volume dampers shall be controlled by an approved galvanized locking quadrant indicating the damper position.

2. Volume dampers installed in ductwork that is to be insulated shall have extended activator/handle rods such that the adjustment of the damper handle will not disturb the insulation.

3. Locate damper as far as possible from air outlet to avoid noise transmission.

D. The Contractor to coordinate easy access to dampers.

E. For inaccessible ceilings, as well as for specialty areas such as lobbies, etc., furnish remote damper actuator operable through face of nearest diffuser. Damper controller and cable shall be concealed above the ceiling. Similar to Bowden remote cable control system, DuroDyne Cable Damper, Metropolitan Air Roto-Twist, or approved equal. Balancing dampers shall include all necessary hardware to ensure compatibility with remote cable control system.

2.6 ACCESS DOORS IN SHEET METAL WORK

A. The Contractor shall provide suitable access doors and frames to permit inspections, operation and maintenance of all valves, all coils including reheat coils, controls, fire dampers, air monitors where applicable, automatic or motorized dampers, filters, bearings, traps, or other apparatus concealed behind the sheet metal work. All such doors shall be of double construction of not less than No. 20 gauge sheet metal and shall have sponge rubber gaskets around their entire perimeter. Doors in insulated ducts or insulated casings shall have rigid fiberglass insulation between the metal panels.

B. All access doors in sheet metal ducts shall be hung on heavy flat hinges and shall be secured in the closed position by means of cast zinc clinching type latches. Where space conditions preclude hinges, use four heavy window type latches. Doors into ducts shall in general not be smaller than 18" x 18" except for access door to fire dampers which will depend on size of fire damper. Submit samples for approval.

C. In no case shall access to any items of equipment requiring inspections, adjustment, or servicing require the removal of nuts, bolts, screws, wing nuts, wedges, or any other screwed or loose device.

D. Each sheet metal chamber shall have access doors for access to all parts of the system. Doors shall be fitted with cast zinc door latches, two per door. Latches shall be operable from both sides of casing. Hinges shall be extra heavy, zinc plated hinges, minimum of two per door. The doors shall be felted or provided with rubber gaskets so as to make them airtight. The doors shall be made with inner and outer shells 2 inches apart so that they may be properly insulated and properly operated. Doors shall be a minimum size of 20" x 48".

2.7 INSPECTION PORTHOLES

A. Provide viewing portholes at both sides of fan sections and return air mixing plenums at air handling units 10,000 CFM or larger (package or built-up) to allow for inspection of fan belts, inlet vanes, damper actuators, etc.

B. Portholes shall be 16" dia. or 12" x 8" made of 1/4" thick acrylic reinforced with flanges in both sides.

2.8 FLEXIBLE CONNECTIONS

A. All fan and air supply unit connections, both at inlet and discharge shall be made with flexible material so as to prohibit the transfer of vibration from fans to ductwork connecting thereto, without air leakage. The material between the clamps shall have sufficient slack so as to prevent tearing due to fan movement.

B. The flexible connections shall be a minimum of 12" long Material shall be mechanically locked to the outside helix. Use of adhesives to lock fabric in place is not acceptable. The helix is constructed of a corrosive resistant galvanized steel, formed and mechanically locked to the duct fabric on the outside to prevent tearing.

C. Flexible fabric ductwork shall be rated at 6" positive pressure and at 4" negative pressure.

D. Flexible metal duct shall be listed UL Class 1.

E. Flexible connections shall be fabricated from approved flame proofed fabric conforming to NFPA 90A. Asbestos cloth is not permitted.

F. Indoor installations shall be Neoprene or vinyl coated fabrics.

G. Outdoor installations shall use Hypalon coated fabric.

H. Manufacturers

1. Flexmaster, Type 8

2. NovaFlex

3. Westaflex

4. Or approved equal.

PART 3 - INSTALLATION

3.1 GENERAL SHEET METAL DUCTWORK INSTALLATION

A. The specifications refer to SMACNA standards, which shall be considered minimal. If NYC DOB require other standards than described in SMACNA, NYC DOB shall govern.

B. Ductwork shall be installed to true alignment, generally parallel or perpendicular to adjacent building walls, floors and ceilings, so as to present a neat and workmanlike appearance.

C. Provide necessary offsets, transitions and streamliners to avoid interference with the building construction, piping, or equipment. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

D. Provide fittings, branches, inlets and outlets in such a manner that air turbulence is reduced to a minimum.

E. Provide a duct system with minimum resistance to airflow. Take-offs shall be throated and transitions made as gradual as possible. 'Bullhead' or sharp take-offs are not acceptable. Branch take-offs shall be 45 deg entry type. Straight tap or butt flanged connections are not acceptable. Clinch lock connections are preferred.

F. Provide straight runs of ductwork at equipment, fans, coils, terminal boxes and humidifiers per manufacturer's recommendations.

G. Tees and laterals at 90 deg or round ducts shall be 45 deg lateral or 90 deg tee with oval to round tap. 90 deg tee fitting or 90 deg tap is not acceptable. Conical tees are acceptable.

H. Provide flexible connector where ductwork connects to fans, air handling units and other rotating equipment and where indicated on drawings.

I. Furnish and install manual dampers, fire dampers, registers, grilles, register boxes, access doors, sound traps, etc., as described elsewhere in the specifications and as required for a complete system, ready for operation.

J. Where fire automatic dampers are shown on drawings or are required, their selection shall be made so that the dampers of all ratings and types shall be of the nominal 100% face area type, with blade package and frame components out of the airstream. These dampers shall include the required oversize enclosures that shall be sealed by the damper manufacturer for the appropriate duct pressure class into which they are installed. Such dampers shall have appropriate rectangular, flat oval or round duct collars to facilitate connection of mating ductwork. The Contractor shall be responsible for any additional sealing of duct collars and connections required to maintain the duct seal class requirements, but shall not jeopardize the UL breakaway connection.

K. All dampers are to be selected and installed with duct transitions so that the damper clear open area (including frames, stops, etc.), equals to or exceeds the connecting duct (inlet and outlet) clear open area (duct clear inside dimensions). The contractor shall provide the required duct transitions.

L. Repair damaged galvanized surfaces with inorganic zinc rich paint.

M. Repair PVC coated steel ductwork where coating is damaged or exposed by connections.

N. Bellmouth fittings shall be constructed to match duct metered requirements as specified herein. Bellmouth connection to duct main shall be made with gasket, sheet metal screws and duct sealant.

O. Enclose dampers located behind architectural intake or exhaust louvers in a sheet metal collar and seal to building construction.

P. Air volume control on parallel flow branches shall be accomplished with branch dampers.

Q. Install special equipment items in ductwork systems, including automatic dampers, thermostats, thermometers, airflow measuring devices and other related controls, according to manufacturer's recommendations or under the supervision of the manufacturer.

R. All required supports, hangers, anchors, and guides shall be provided and installed by the contractor.

S. All ductwork; flues, register boxes, air chambers, dampers, and all auxiliary work of any kind, necessary to make the various air conditioning, ventilating and heating systems of the building complete and ready for operation, shall be furnished and installed.

T. All ductwork indicated on drawings is schematic. Therefore, changes in duct size and/or location shall be made where necessary to conform to space conditions, at no additional cost to the City of New York.

U. Ductwork connected to intake or discharge louvers shall be galvanized steel, painted for the first 10 feet with bitumastic, pitched to a low point, and provided with a 1-1/2" copper drain piped by the contractor to a building drain.

V. A snap lock seam shall not be permitted as a substitute for the Pittsburgh lock except for systems with pressure classification +1" and less and where longitudinal joints are sealed and riveted at corners.

W. Where the trade elects to use duct sealant for joints or similar product, PVC clips are not permitted (use metal) and all corners shall be bolted (boltless connectors are not permitted) except where NYC Building Codes permit duct sealant joints as breakaway connection at fire dampers.

X. Use gasketed type joint when dissimilar metals are joined.

Y. All ductwork unless otherwise noted shall be hung with 1 in. x 1/8 in. galvanized iron bands. Ductwork with cross sectional area under 4 square feet shall be hung on 8'-0 in. centers. For ducts with a cross-sectional area of more than 4 sq. ft. but not over 10 sq. ft. hangers shall be no more than 6 feet apart, and for ducts with a cross sectional area of more than 10 sq. ft. hangers shall be no more than 4 ft. apart. All hangers shall be bent (2" minimum) under the bottom as well as the sides and secured with sheet metal screws.

Z. Where ducts are stacked they shall be independently supported as above or shall be supported on minimum 1¼" x 1¼" x 1/8" angle cradle hung by either 1¼" x 1¼" x 1/8" angles or 3/8" diameter threaded rod.

AA. All ductwork shall be substantially built with approved joints and seams smooth on the inside and a neat finish on the outside. Duct joints as near air tight as possible, with laps made in the direction of air flow and no flanges projecting into the air stream. Ducts shall be adequately braced to prevent vibration. All angles shall be galvanized or shop painted with two coats of rust resistant paint.

BB. Changes in shape and dimension shall conform to the following:

1. Increase and reduce duct sizes gradually. Limit transition angle (for each side) to the following:

    a. For increases in cross-sectional area, the shape of the transformation shall not exceed 1" in 7".

    b. For reductions in area the slope may be 1" in 4" but 1" in 7" is preferred.

CC. Changes in direction shall conform to the following:

1. Unvaned elbow with throat radius not less than ½ the width of the duct.

2. Provide square elbows in rectangular ducts where radius elbows will not fit or where specifically noted on drawings. Square elbows with single thickness duct turns shall be as per SMACNA with 3-1/4" spacing, and are acceptable in ducts with not more than 2200 FPM air velocity. For higher velocities, use sweep type vanes.

DD. Turning vanes shall be single blade turning vanes fabricated from the same material as the duct. Large radius vanes shall be used. The maximum unsupported vane length shall not exceed 36". Tab spacing shall be SMACNA standard. Vanes shall be welded to runners. Rail systems with non-standard tab spacings shall not be accepted. All tabs shall be used, do not skip tabs. Mounting rails shall have friction insert tabs which align the vanes automatically. Vanes shall be subjected to tensile loading and be capable of supporting 250 lbs when fastened per the manufacturers instructions.

EE. Wherever it may be necessary to make provisions for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers as to fully protect the duct from being punched with holes for the passage of such hangers. Any such streamlined sleeves shall be made air tight at top and bottom of ducts. In no case shall there be more than two rods in any 9 sq. ft. area. No rods shall pierce ducts smaller than 12" in horizontal area. No hangers shall pierce high pressure ducts.

FF. When floor shut-off dampers are shown on drawings their selection shall be made so that the frames and stops of such dampers are outside of the air stream, so as to provide a nominal 100% free area damper.

GG. Exact dimensions of register boxes must await approval of grilles, and exact locations shall be submitted for approval, otherwise any changes directed after installation shall be made without additional cost. All register boxes and other opening of the ductwork must be kept tightly closed during construction to keep out rubbish.

HH. Provide temporary closures on open ductwork when installation does not proceed for more than one day to prevent construction dust from entering ductwork system.

II. Openings for pitot tubes traverses shall be fitted with neat, removable plugs or caps. As a minimum, openings shall be provided at every fan inlet and at other locations that are required for testing and balancing. Coordinate locations with testing and balancing scope of work.

JJ. Provide No. 16 USSG, 3/4" wire mesh screen over each open return duct in hung ceiling unless register or grille is shown.

3.2 DUCT SEALANTS

A. Sealant: Water based elastomeric compound, gun or brush grade, maximum 25 flame spread and 50 smoke developed (dry state) specifically for sealing ductwork. Use products as recommended by manufacturer for low, medium or high pressure systems.

1. Manufacturers

    a. Hardcast

    b. United McGill

    c. Polymer Adhesives

    d. Ductmate

    e. Or approved equal

B. Provide liquid sealant, with or without compatible tape, for low clearance slip joints and heavy, permanently elastic mastic type where clearances are larger. Oil base caulking and glazing compounds are not acceptable.

C. Tape: Use only tape specifically designated by the sealant manufacturer. SMACNA recommends that foil tape not be used and that pressure sensitive tape not be used on bare metal surface or on dry sealant.

3.3 DUCTWORK CLEANER AND DISINFECTANT

A. Required chemical cleaning shall utilize all-purpose, biodegradable degreasing chemical.

B. Required chemical disinfecting shall utilize a biocide disinfectant to kill bacteria, mold, mildew, and fungus.

3.4 LEAKAGE TESTING, AIR DISTRIBUTION SYSTEM

A. General: Each air distribution system shall be tested for leakage before insulation is applied.

B. After portions of the Work are completed, the following tests shall be made in the presence of the Commissioner. Five (5) days advance written notice of the tests shall be given to the Commissioner, who in turn will notify other parties interested. Furnish all gauges, blowers, instruments, test equipment and personnel required for tests, and make all provisions for removal of test equipment after tests have been made.

C. Air Handling Systems:

1. Ductwork (+/-) 3.0" wg (or greater) external static pressure class (see following schedule): All ductwork, risers and branches shall be individually tested with a blower, orifice section and U-tube gauge board. Each riser and branch shall be isolated from the remainder of the system by means of seals, plugs, or caps.

2. The blower shall maintain the design pressure class (see chart below) pressure differential across the orifice plate. Leaks which cause an air loss greater than the permissible leakage rate, defined below and, noisy or whistling leaks, shall be repaired and a retest made.

3. All ductwork: Horizontal mains in the mechanical rooms, tenant spaces and service rooms shall be tested after all riser tests have been accepted (where required) and after risers have been connected to the mains but before the branches have been connected to the risers. Mains shall be tested as described for risers and branches.

4. After the acceptance of the tests by the Commissioner, the branches shall be connected to the risers and the ductwork shall be released for insulation.

5. Permissible leakage rates:

Duct System	Pressure Classification External Static Pressure	SMACNA Seal	SMACNA Leakage Classification
All supply ducts on systems without VAV terminal boxes from fan discharge to diffuser, and all ductwork downstream of VAV boxes to diffusers.	+3"W.G.	B	12
All return ducts and exhaust ducts, where not used for smoke exhaust.	-1" W.G.	B	12

3.5 SCHEDULE

A. See drawings.

END OF SECTION 23 31 13

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SECTION 23 33 13
DAMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Related Sections: The following sections contain requirements that relate to this section:

1. Section 23 05 00 - Common Work Results for HVAC.
2. Section 23 05 50 - Basic Mechanical Materials and Methods.
3. Section 23 09 00 - HVAC Instrumentation and Controls.
4. Section 23 07 00 - HVAC Insulation.
5. Section 23 31 13 - Metal Ductwork
6. Section 23 37 15 - Air Distribution Devices.
7. Division 26 - Electrical.

1.3 SECTION INCLUDES

A. This section includes following:

1. Dampers.
2. Damper Terminal Strips.
3. Dampers for Balancing.
4. Pressure Sensitive - Backdraft Dampers.
5. Dampers for Fire Protection.
6. Fusible Link Dampers.
7. Fire Dampers.

8. Automatic Control Dampers.

9. Refer to other Division 23 sections for air distribution devices and accessories required in conjunction with this work.

1.4 REFERENCES

A. SMACNA.

B. ASHRAE.

C. NFPA.

1.5 QUALITY ASSURANCE

A. Qualify welding processes and welding operators in accordance with AWS.D1.1 “Structural Welding Code - Steel” for hangers and supports and SWS.D9.1 “Sheet Metal Welding Code.”

B. Qualify each welder in accordance with AWS qualification tests. Certify that their qualification is current.

C. NFPA Compliance: Comply with the following NFPA Standards:

1. NFPA 90A, “Standard for the Installation of Air Conditioning and Ventilating Systems,” except as indicated otherwise.

D. SMACNA - HVAC Duct Construction Standards, Latest Edition.

E. The contractor must comply with the specification in its entirety.

F. At the discretion of the Commissioner, sheet metal gauges, reinforcing and dampers may be checked at various times to verify all duct construction is in compliance. If on inspections, changes have been made without prior approval, the contractor will make the applicable changes to comply with this specification, at the contractor’s expense.

1.6 SUBMITTALS

A. Submit product data under provisions of General Conditions.

B. Include product description, list of materials for each service, and locations.

C. Product data including details of construction relative to materials, performance data (including pressure drops), dimensions of individual components and profiles for the following items:

1. Dampers.

2. Indicate the location and rating of all dampers on shop drawings and submittals.

3. Include damper manufacturer's installation instructions as part of the damper submittal. These instructions shall describe the applicable requirements for damper sleeve thickness; retaining angles; sealing; duct-to sleeve connections; preparation of wall, floor or ceiling openings; and other requirements to provide an installation equivalent to that tested by the damper manufacturer during the UL 555, UL 555S and UL 555C qualification procedures. Detail any proposed installations that deviate from these manufacturer's instructions and explain the needed deviations. Fire and smoke damper installations shall comply with the manufacturer's instructions. Any submitted deviations must be approved by NYC DOB.

D. Welding certificates including welding procedures specifications, welding procedures qualifications test records, and welders qualifications test records complying with requirements specified in “Quality Assurance” above.

E. Maintenance data for dampers, fire dampers.

1.7 DEFINITIONS

A. Sealing Requirements Definitions: For the purposes of duct systems sealing requirements specified in this Section, the following definitions apply.

1. Seams: A seam is defined as jointing of two longitudinally (in the direction of airflow) oriented edges of duct surface material occurring between two joints. All other duct surface connections made on the perimeter are deemed to be joints.

2. Joints: Joints include girth joints, branch and subbranch intersections; so-called duct collar tap-ins; fitting subsections, louver and air terminal connection to ducts; access door and access panel frames and jambs; duct, plenum and casing abutments to building structures.

PART 2 - PRODUCTS

2.1 DAMPERS - GENERAL

A. All electric and/or pneumatic operated dampers which have a fire and/or smoke rating shall be furnished by the contractor. All other electric and/or pneumatic operated dampers shall be furnished by the Contractor. Fusible link dampers for fire protection, manual dampers for balancing and/or shut-off as well as dampers which are specified as part of factory built air handling units or terminal units shall be furnished by the contractor. All dampers shall be installed by the contractor.

B. Dampers of all ratings and types shall be of the nominal 100% face area type, with blade package and frame components out of the airstream. These dampers shall include the required oversize enclosures that shall be sealed by the damper manufacturer for the appropriate duct pressure class into which they are installed. Such dampers shall have appropriate rectangular, flat oval or round duct collars to facilitate connection of mating ductwork. The Contractor shall be responsible for any additional sealing of duct collars and connections required to maintain the duct seal class requirements, but shall not jeopardize the UL breakaway connection.

C. All dampers are to be selected and installed with duct transitions so that the damper clear open area (including frames, stops, etc.), equals to or exceeds the connecting duct (inlet and outlet) clear open area (duct clear inside dimensions). The contractor shall provide the required duct transitions.

D. The maximum single damper assembly whether single or multi-section may not exceed the limit as certified by UL. Where multiple assemblies are required provide approved mullions.

E. Dampers shall be installed per the condition of their UL listing and the manufacturer's installation instruction.

F. Damper shall be in accordance, UL 555S (Latest Edition) and all requirements of NYC Building Code and shall have UL label.

G. Fire/smoke sleeves shall not extend more than 6" beyond the fire wall or partition and not more than 16" on the operator/actuator side.

H. Contractor shall submit static pressure loss thru damper at operating duct velocities.

I. Provide access doors as per code and specifications.

J. The contractor shall furnish damper actuators for all dampers. Where practical, actuators shall be factory mounted by the damper manufacturer. The actuators shall be located outside of the airstream. The contractor shall provide a terminal strip alongside the damper for all dampers.

K. Wiring for motor operated dampers that have a fire and/or smoke rating shall be provided by the contractor from the damper actuator and any associated end switches and sensors to a terminal strip that is wall mounted along side the damper.

L. The contractor shall provide wiring as follows:

1. Between the terminal strip for all dampers and their associated thermostats, pressure switches, etc. whether or not the contractor has furnished the damper.

M. Dampers incorporating multiple sections shall be controlled in unison. Where more than one (1) actuator serves a damper, then the actuators shall be driven in unison and the control wiring shall be provided accordingly.

N. Dampers incorporating multiple sections shall be designed in such a way that the actuators are easily accessible. Under no circumstances shall it be necessary to remove damper sections or structural or other fixtures to facilitate removal of damper motors. Provide access doors wherever necessary to meet this requirement.

2.2 DAMPER TERMINAL STRIPS

A. Terminal strip(s) shall be provided along side all motorized dampers.

B. Where dampers are furnished by the contractor then he shall provide relays, interconnect wiring and other components to meet the requirements detailed below. The terminal strip(s), relays, etc. shall be housed in wall mounted enclosures which meet the specifications detailed for local starter enclosures.

C. The terminal strip shall be wired such that the local control panel can undertake the following control and monitoring functions:

1. Open Control - A pair of terminals shall be wired such that when a controls local panel relay closes a contact pair across these terminals the damper is driven open. If the damper is two position with an actuator which drives closed and springs open on loss of power then these terminals shall not be used.

2. Close Control - A pair of terminals shall be wired such that when a controls local panel relay closes a contact pair across these terminals the damper is driven closed. If the damper is two position with an actuator which drives open and springs closed on loss of power then these terminals shall not be used.

3. Motor Interlock - A pair of terminals shall be wired to an end switch on the actuator such that the contacts between the terminals shall be closed when the damper is fully open and open when the damper is not fully open. This pair of terminals shall be used for interlocking a damper with a motor such that the motor will not be able to start if the damper is not fully open.

2.3 DAMPERS FOR BALANCING

A. Provide manual dampers for balancing the air systems.

B. Construction shall conform to latest SMACNA standards. When installing dampers in ducts to be insulated provide raised bracket for damper quadrant with height equal to insulation thickness.

C. If location of balancing dampers is not defined on the drawings the following minimum standards shall govern:

1. All supply & return air main branches from trunk, and all sub branches from mains shall have balancing dampers.

2. Locate damper as far as possible from air outlet to avoid noise transmission.

D. Coordinate with existing conditions for easy access to damper.

E. For inaccessible ceilings, as well as for specialty areas such as lobbies, etc., furnish remote damper actuator operable through face of nearest diffuser. Damper controller and cable shall be concealed above the ceiling. Similar to Bowden remote cable control system, DuroDyne Cable Damper, Metropolitan Air Roto-Twist, or approved equal.. Balancing dampers shall include all necessary hardware to ensure compatibility with remote cable control system.

2.4 PRESSURE SENSITIVE BACKDRAFT DAMPER

A. Backdraft Dampers - Provide as sized in drawings. Based on Arrow Louver & Damper Model 366 Potteroff louver and damper models BD-64, BD-84, Ruskin BD Series, Greenheck BD Series, or approved equal.

B. Frames - Extruded Aluminum 6063-T5 Alloy .081 B & S Ga., 1" x 4" x 1" Channel with gasketing on all four sides.

C. Blades - Extruded Aluminum 6063-T5 Alloy .081 B & S Ga. contoured for strength and overlap edges with gaskets to ensure low leakage.

D. Shafts - ½" dia. Extruded Aluminum - Pinlock design.

E. Seals - Extruded Interlocked Silicone Rubber Seals on blade edges and expanded polyurethane on frame.

F. Linkage - Cadmium plated steel mounted on blades.

G. Screen - ½" Aluminum Bird Screen in "U" frame to be removable on both sides of unit, as required.

H. Balances:

1. Removable fixed weights on blades and adjustable counterweights for finite adjustments in field by the contractor.

2. Fixed weights and adjustable counterbalance weights shall be installed to resist opening. Fixed weights and adjustable counterbalance weights are to be able to be removed from upstream of damper. All weight, fixed and adjustable counterbalance, can be on the exterior of damper frame. Finite adjustments allowed in field by the contractor.

I. Housing - 16 Ga. galvanized metal sleeve.

J. Damper size is based on .15" s.p. drop at 400 ft./min. Damper shall maintain .15" s.p. in shaft.

2.5 DAMPERS FOR FIRE PROTECTION

A. Dampers and doors for fire protection shall be identified by the use of the symbol FLD on the drawings. Note that the use of the symbol FLD implies the provision of access doors. For installation in 1-1/2 Hr. or 2 Hr. fire separations or fire divisions provide 1-1/2 hour fusible link fire dampers U.L. labeled for use in Class B openings. For installation in 3 or 4 hour fire separations or fire divisions provide two fire dampers in series U.L. labeled for use in Class A openings, or other UL classified damper rated for 3 hrs.

2.6 FUSIBLE LINK DAMPERS (FLD)

A. Fusible Link Dampers and Fire Doors shall be installed where shown in the drawings and where required by code, and shall be of the folding blade type, Fire/Seal as manufactured by Air Balance, Inc., Ruskin, Greenheck, or approved equal and shall bear the Underwriters' Laboratory label. Type “B” or “C” mountings shall be used for all installations, frames and blades are to be outside of airstream. Type "A" mountings are not permitted.

B. Horizontally mounted dampers shall be operated by stainless steel negotiator springs with locking devices to ensure positive closure. Fire damper shall meet the requirements of latest N.F.P.A. Bulletin #90A, and shall be tested in accordance with U.L. 555 test criteria for fire, corrosion and dust loading, labeled and listed by Underwriters' Laboratories. Dampers of other manufacturers may be approved subject to proper submission of Underwriters acceptance plus pressure drop calculations.

C. NYC Building Code shall take precedence where they supercede NFPA. However, the Contractor shall notify the Commissioner in writing citing such differences by reference to such codes should the contract documents not reflect these differences.

D. FLD's shall be provided as follows:

1. At each penetration of a vertical shaft. On upflow exhaust ducts where permitted by Code, a 22" long internal boot may be used after approval of duct pressure drop calculation.

2. At each fireproof slab penetration where there is no vertical fireproof shaft.

3. At each penetration of a required fire separation or fire division.

4. At each penetration of a required fire rated corridor or ceiling.

E. General:

1. Units should be Board of Standards & Appeals Approved type for use in New York City.

2. Units shall be approved for use by the NYC DOB and FDNY.

3. The Contractor shall clearly indicate location of units on shop drawings and shall provide access doors in the ducts at each damper of sufficient size and type to permit inspection and replacement of linkage. Provide itemized list of fire dampers for inspection. It shall be the Contractor's responsibility to coordinate all locations of duct access doors.

4. Access doors shall be cam latched with vinyl gasket to provide tightest possible seal between the duct and frame. Doors shall be self-tightening and gasketed with hand operated cam locks and will be fully insulated. Access doors shall be Air Balance, Inc. Fire/Seal, Ruskin, or Greenheck, or approved equal.

5. Comply with U.L. recommendations for break away connections at maximum distance of 6" from wall, and all other U.L. recommendations NYC Building Code requirements. Retaining angles must be wide enough to have sufficient bearing on wall (minimum surface contact of 1").

6. Damper blades and frame shall be outside of airstream, to provide a nominal 100% free area dampers.

2.7 FIRE/SMOKE DAMPERS

A. Combination fire/smoke dampers, designated as "F/SM" shall be furnished and installed at location indicated in the contract documents and shall comply with the following:

1. Dampers shall meet the requirements of NFPA 90A, 92A and 92B.

2. All fire/smoke dampers shall be classified by UL for use in smoke control systems in accordance with the latest version of UL555S and shall have a UL label.

3. Dampers shall be provided with factory-installed, UL-rated full sleeves.

4. Provide airfoil damper blades supported with shafts and stainless steel bearings to allow daily operation.

5. Provide intermediate supports and bearings for damper blades more than 36" long. They shall conform to UL Standard 555 and 555S as leakage rated dampers in smoke control systems and when closed shall be the equivalent of a 1 ½ hour fire damper.

6. The leakage rating under UL5555 shall conform to Class 1 with maximum leakage of 4 CFM/Sq. Ft. at 1" W.G.

7. The damper manufacturer shall provide damper actuators. If dampers are pneumatically actuated, the damper manufacturer shall provide EP switch.

8. All dampers shall be provided with position indicator switches to enable remote status of open or closed positions, however, only those dampers designated in the plans and specifications as F/SM (HS), which indicate that they will be controlled from a central fire command station will be wired for remote status and remote open/closed operation.

9. Dampers that are controlled from a central fire command station shall:

   a. Be provided with a 212°F heat sensor with normally closed contacts (manual reset) to close and lock damper if open.

   b. Additionally, dampers shall be factory-equipped with a second normally closed heat sensor correlating to the operator/actuator degradation temperature classification (250°F. to 350°F., depending on actuator utilized). The second sensor is wired through a manual override switch on the central fire command station.

   c. The following will be accepted in lieu of the two firestats described. A resettable bimetallic link which opens on heat permitting damper to close and lock if open. This link may be re-engaged from fire command station at temperature of 150°F or less.

d. Dampers that are not controlled from a central fire command station shall have a fusible link that melts on heat causing damper to close and lock in a closed position.

10. Dampers shall be Ruskin FSD60, Greenheck, Imperial, or approved equal.

2.8 AUTOMATICALLY CONTROLLED DAMPERS

A. Temperature control manufacturer shall provide all automatic control dampers which do not have either a fire and/or smoke rating.

B. Dampers shall be of the louver type with neoprene or vinyl edged blades and end seals.

C. Maximum air leakage per AMCA rating shall be 3 CFM/sq. ft. at 3.0" SP.

D. Maximum pressure drop with the damper open (AMCA rating) shall be 0.05" at 150° FPM air velocity.

E. Louver blades shall be #16 gauge galvanized steel, maximum 8" in width.

F. Frames shall be minimum 4" reinforced flat galvanized steel with welded corners and stiffening and provisions for end seals.

G. All rods shall be non-corrosive material with provision for positive interlocking of blades and actuators on the shaft.

H. All bearings shall be nylon or Teflon.

I. All hardware shall be of non-corrosive material.

J. Two position dampers may be of the parallel-blade type. Modulating dampers shall be of the opposed-blade type.

K. Provide solid stops on all sides of the frames against which the louver shall close in order to provide maximum 2% leakage at 5" static pressure.

L. Automatic damper actuators shall be limited to a minimum of one every sixty square feet for two-position type and one every forty square feet for modulating type.

M. Damper actuators shall meet the same requirements as valve actuators with respect to operating at variable rates of speed, etc., and shall have external adjustable stops to limit the stroke in either direction.

N. All damper actuators shall be of the neoprene or rubber diaphragm piston type, with sufficient power to overcome friction of damper linkage and air pressure acting on louvers and with mounting arrangement for location outside of the air stream, wherever possible.

O. Automatic dampers exposed to outside air shall be of aluminum construction.

2.9 MISCELLANEOUS

A. When floor shut-off dampers are shown on drawings their selection shall be made so that the frames and stops of such dampers are outside of the air stream, so as to provide a nominal 100% free area damper.

B. Where fire dampers, automatic dampers or combination fire/smoke dampers are shown on drawings or are required, their selection shall be made so that the frames, stops, etc. of such dampers are outside of the airstream so as to provide a nominal 100% free area damper.

C. Furnish and install manual dampers, fire dampers, registers, grilles, register boxes, access doors, sound traps, etc., as described elsewhere in the specifications and as required for a complete system, ready for operation.

PART 3 - EXECUTION

NOT APPLICABLE.

END OF SECTION 23 33 13

SECTION 23 34 00
FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Related Sections: The following sections contain requirements that relate to this section:

1. Section 23 05 13, Common Motor Requirements for HVAC Equipment.

2. Section 23 05 50, Basic Mechanical Materials and Methods.

3. Section 23 31 13, Metal Ductwork.

4. Section 23 05 15, Variable Speed Controllers.

5. Division 26 - Electrical

1.3 SECTION INCLUDES

A. This section includes the furnishing and installation of fans of various types, arrangements and sizes, as specified herein and scheduled on drawings.

1.4 REFERENCES

A. SMACNA.

B. AMCA.

C. ASHRAE.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of fans, of types and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years.

B. Codes and Standards:

1. ARI Compliance: Test and rate air devices in accordance with ARI Standards.

2. ASHRAE Compliance: Test and rate air devices in accordance with ASHRAE Standards.

3. ADC Seal: Provide devices bearing ADC Certified Rating Seal.

4. AMCA Compliance: Test and rate fans in accordance with AMCA Standards and shall bear AMCA Certified Rating Seal.

5. NFPA Compliance: Install fans in accordance with NFPA90A "Standard for the Installation of Air Conditioning and Ventilating Systems."

6. UL Compliance: The fans must be labeled and listed by UL and must be installed to meet their requirements.

7. All fans must be tested and approved for safety in accordance with the latest N.E.C.

8. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC DOB, and marked for intended use.

9. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.

10. NEMA Compliance: Motors and electrical accessories shall comply with NEMA 1.

1.6 SUBMITTALS

A. Submit static pressure, airflow (CFM), speed (RPM), system curve, outlet velocity and fan tag for each fan.

B. Submit certified fan curves showing fan performance with the system operating points identified on curves. Surge, or 'Do not operate' line, shall also be indicated on fan curve.

1. Performance curves shall be published by the fan manufacturer and based on tests in accordance with AMCA 210. The curves shall be drawn with the fan flow rate plotted against fan static pressure and fan brake horsepower as per section 10.2.1 of AMCA 210. The static pressure plotted is to be the difference between the total pressure at the fan outlet as defined as Plane 2, and the static pressure at the fan outlet as defined as Plane 1 in AMCA 210. Manufacturers submitting performance data not in full accordance with the requirements of this paragraph will be required to perform a witnessed AMCA performance test for each fan/motor specified prior to approval. The full cost of such tests, including the time and expense of the observers, shall be borne by the Contractor.

C. Submit sound power levels for each size and type of fan. Sound levels shall be in all eight (8) octave bands for discharge of fan, inlet to fan, and radiated noise through casing.

D. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and methods of assembly of components and size of each field connection.

E. Wiring Diagrams: Submit ladder-type wiring diagrams for electric power and control components, clearly indicating required field electrical connections.

F. Maintenance Data: Submit maintenance data and parts list for each fan, including “trouble shooting” maintenance guide. Include this data, product data, shop drawings, and maintenance data in maintenance manual, in accordance with requirements of General Conditions.

G. Coordination Drawings: Show fan room layout and relationships between components and adjacent structural and mechanical elements. Show support locations, type of support, and weight on each support. Indicate and certify field measurements.

1.7 FACTORY BALANCING

A. Statically and dynamically balance each fan per AMCA requirements.

B. The maximum allowable RMS velocity at maximum fan class speed measured at each bearing shall not exceed 0.09 inches/sec.

1.8 FACTORY TESTING

A. Test each fan at the factory before shipment. Testing shall be conducted at the maximum fan class speed.

1.9 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver fans as factory-assembled units, to the extent allowable by shipping limitations, with protective crating and covering.

B. Disassemble and reassemble units, as required for moving to the final location, according to manufacturer's written instructions.

C. Lift and support units with manufacturer's designated lifting or supporting points.

1.10 COORDINATION

A. Coordinate size and location of structural-steel support members.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The following manufacturers will be reviewed for approval providing they meet all of the performance requirements of the specifications.

1. Acme

2. Aerovent

3. Barry
4. Bayley
5. NY Blower
6. Greenheck
7. Howden/Buffalo
8. Loren Cook
9. Woods
10. or Approved equal

2.2 FANS - GENERAL

A. Fans shall be of the types and capacities listed in the Schedules on the Contract Documents and as specified herein.

B. Fan performance shall be based on tests conducted in accordance with ASHRAE 51 and AMCA Standard Test Code for Centrifugal and Axial Fans and fans shall bear the AMCA Certified Ratings Seal for Sound and Air Performance.

C. Fan shall be listed by Underwriters Laboratories (UL/cUL 705) for US and Canada. For restaurant applications, fan shall be listed by Underwriters Laboratories (UL/cUL 762) for US and Canada.

D. Centrifugal fans to be non-over-loading having a sharply rising pressure characteristic which will extend throughout the operating range and continue to rise well beyond the efficiency peak to ensure quiet, stable operation under all conditions. The horsepower characteristic shall be truly self-limiting and shall reach a peak in the normal selection area. Unit shall be of manufacture as noted on drawings, or approved. Submit sound power ratings for approval.

E. Fans shall be provided with mechanical brake.

F. Fans shall be statically and dynamically balanced at the factory prior to shipment. Fans shall be balanced for inverter duty operation (VFC). The fan will be balanced over the entire range of fan operation (30% to 100% of RPM). Filter-in measurements shall not exceed 5 mils in the horizontal and vertical planes. Filter-out measurements shall not exceed 7.5 mils in the horizontal, vertical and axial planes.

G. Fan shall be minimum Class I construction with proper UL label.

H. The specified fan RPM, outlet velocity, and trip speed are the maximum acceptable. The motor horsepower, CFM, and static pressure are the minimum acceptable.

I. Unless noted otherwise by specific fan type housing, fan housing shall be heavy gauge continuous welded steel construction with fan scroll and bearings supported from structural steel framework. Minimum gauge construction shall be as indicated in the material construction schedule.

J. Fan housing shall be of suitable thickness and bracing required for stable and rigid construction, with no deflection, and to prevent vibration and pulsation.

K. Provide inlet screens for all fans, constructed for easy removal, manufacturer of heavy wire mesh.

L. Fans having duct-connected inlets shall be provided with a flanged inlet and/or outlet collar matching companion flange.

M. For exterior mounted fans, a weatherproof housing shall be provided with ventilation grilles to cover motor and drive assembly.

N. Provide special construction fans, such as spark-proof, explosion-proof, or specially coated fans as required by schedules or as specified herein.

O. Provide birdscreen on fans exposed to the environment.

P. Provide adequate space for service of fan, motor and bearings.

Q. The fan shaft shall be solid steel, accurately turned, ground and polished, and ring gauged for accuracy.

R. Recommended bearing manufacturer tolerances must be met in the contact area for bearings.

S. Shafts must be dial indicator inspected for straightness after the keys are cut.

T. Fan shaft shall be coated with rust inhibitive coating.

U. Fan wheel assembly or propeller assembly shall be statically and dynamically balanced prior to fan assembly.

V. The entire rotating assembly shall be designed so the first critical speed is a minimum of 25% greater than the max class fan speed.

W. Fan Shaft Bearings

1. Fan bearings shall be foot-mounted type, bolted on a rigid welded steel framework integral with the housing.

2. Bearings shall be designed and individually tested specifically for use in air handling applications.

3. Bearings shall be sized for a minimum L-10 life of 200,000 hours at maximum fan class operating conditions including belt pull, unless noted otherwise. Bearings shall be selected in accordance with standards set forth by the Anti-Friction Bearing Mfrs. Assn. (AFBMA).

4. Bearings for smaller fans shall be permanently sealed bearings or pillow block ball bearings or regreaseable cast bearing.

5. Bearings shall be double-row spherical, self-aligning, grease lubricated, roller bearings housed in a horizontally split pillow block housing.

6. Where bearings are not easily accessible or motor is installed in airstream, provide stable, accessible clear plastic grease leads to a common location.

X. Fan Motor

1. Motors shall meet requirements as specified under Section 230513 Common Motor Requirements for HVAC Equipment.

2. Fan drive shall be a multiple V-belt type sized for 1.65 times the fan motor horsepower, unless noted otherwise.

3. Provide balanced variable sheaves for motors 7.5 HP and under and fixed sheaves for motors 10 HP and over. Size variable sheaves at midpoint of specified operating conditions to allow field adjustment up or down during balancing procedures.

4. Replacement of Sheaves: Provide additional adjustable or fixed sheaves at no extra cost, if required for balancing.

5. V-Belt Drives: The fans are to be driven with V-belt drive, of ample capacity sized for 1.65 x motor HP. Sheaves shall be adjustable ratio type; they shall be sized to give the required fan speed with motor sheave at about the middle of its range of adjustment. There shall be at least two (2) belts; and drive capable of carrying the entire load with an additional 50% safety factor. Belt guards with opening for RPM readings to be provided for all sheaves and belts. Submit drive data for approval. For fans with motors 75 HP and over, supply fixed ratio sheaves and manually adjustable inlet vanes in lieu of variable type sheaves. Performance (RPM, BHP) shall be corrected for inlet vane losses and fan RPM shall be selected 10% above specified fan operating point. Manufacturer shall guarantee that fan will operate stably when vanes operate 20% below fixed sheave RPM.

6. Sheaves shall be fixed or adjustable based on fan motor horsepower as specified herein before. Fan sheave shall have a tapered lock, split and keyed hub. For fans ½ HP and larger, quantity of belts shall be such that if any one belt fails, remaining belts shall allow fan to continue functioning as designed.

7. Some fans will be furnished with variable speed drives as indicated in the Contract Documents. The motors for the variable speed drive fans shall be designed for variable speed duty and the motor manufacturer shall certify that the motor and variable speed drives are compatible. See Section 23 05 15 titled "Variable Frequency Controllers" for variable speed drive specifications.

8. Each motor for a belt driven fan shall be factory mounted on an adjustable base rigidly supported on the fan and shall have extended shaft to accommodate the adjustable pitch sheaves.

9. Motor shall be 1800 rpm maximum for belt driven or direct drive fans.

10. An OSHA approved type fan drive belt guard shall be provided with provision for RPM measurement at both motor and fan without removing the guard. The guard shall be made of ½" 16 gauge flattened expanded steel, wrapped around a 16 gauge channel frame suitably braced to prevent vibration. Guard shall be G-90 galvanized with coating same as fan.

11. Fan belts shall be oil resistant 24,000 hour non-static belts.

Y. Sound Rating:

1. Fan sound ratings shall be based on AMCA 300 tests in a sound laboratory reverberant room. Data must be based on RSS calibration within last six (6) months. Separate data must be provided for both inlet and outlet.

2. Where the manufacturer's sound power data is not published, an officer of the company must certify that sound data conforms with the requirements specified by the equipment schedule. If the manufacturer does not have acoustical facilities in accordance with the above requirements, the contractor must submit certified data that the specified units have been tested in an approved independent acoustics lab, capable of testing equipment at specified operating conditions to determine sound power levels by octave band.

3. Where units do not meet the above requirements, the contractor must furnish at no additional cost, necessary attenuation to reduce net sound level to the above requirements. In this case, the room sound level must be taken by the contractor and submitted for approval by the Commissioner to assure conformance to sound level requirements.

Z. Provide thrust arrestors as required to limit movement of the fan upon start-up.

AA. Manufacturer shall provide heavy gauge windband constructed of bolted steel with reinforced edges and bolted seams and butterfly damper constructed of heavy gauge aluminum with field-replaceable neoprene seals, as required.

BB. Provide riveted, engraved aluminum nameplate containing pertinent, specific fan data, including manufacturer, model, serial number, etc.

2.3 CENTRIFUGAL FANS

A. Housing: The entire fan housing shall have continuously welded seams for leak proof operation and shall have a minimum 1 ½" outlet discharge flange. A performance cut-off shall be furnished to prevent the recirculation of air in the fan housing. Braced to prevent vibration or pulsation. Inlet to be fully streamlined.

B. Wheel and Blades: Air foil backward curved blades, to be continuously welded to both backplate and sideplate and seam welded along the back edge of the blade. Air passage to be free of interference (no intermediate rings or sway bracing) Wheels shall be statically and dynamically balanced before shipment. For construction use high strength alloy steel, treated for corrosion resistance (spark resistance, if required) or aluminum. Wheels shall be statically and dynamically balanced in accordance with AMCA Standard 204-96 "Balance Quality and Vibration Levels for Fans. High pressure air handling units shall only be furnished with Class III air foil fan wheels.

C. Finish: Interior and exterior of fan to be factory coated; manufacturer's standard rust resistant paint acceptable.

1. Standard finish shall have a baked industrial grade finish conforming to the following ASTM Standards.

2. Final coating thickness is 1.5 - 2.5 mils.

PROPERTY	TEST METHOD	VALUE
Salt Spray	ASTM B117	1000+ hours
Humidity Resistance	ASTM D2247	1000+ hours
Impact Resistance	ASTM D2794	100 in. lbs.
Pencil Hardness	ASTM D3363	2H
Crosshatch Adhesion	ASTM D3359-B	100%
Max Service Temperature	NA	230 deg F

D. Shaft: Properly sized, one piece solid, hot rolled steel, accurately turned, ground and polished. Fan shafts shall not pass through their first critical speed as rated rpm is reached. Rust preventive coating to be provided. Fan wheels to be secured with slotted keyways on solid shafts and with taper lock hubs on tubular steel shafts.

E. Bearings: Heavy duty, self aligning pillow block, garage lubricated, anti-friction ball or roller type bearings selected for a minimum average life (AFBMA L-50) in excess of 200,000 hours operation at maximum cataloged operating conditions. Above 27" diameter fan wheel use horizontally split pillow block type bearings with tapered, double spherical rollers selected for a minimum average life (AFBMA L-50) in excess of 200,000 hours operation at maximum cataloged operating conditions. Provide extended fittings to be mounted externally.

F. Drain Connections: Provide 1" drain connection at bottom of fan.

G. Access Doors: Are required in all fan scrolls of fans over 36" wheel diameter of the quick opening type, secured to the frame by hand grip bolts and provided with lift handles. Raised type access doors shall be provided on all insulated fans (inner surface to be flush with the scroll).

H. Adjustable Inlet Vanes: To be provided for automatic operation for variable air volume systems on supply and return fans. Vanes on DWDI fans shall be interconnected through a linkage that will allow vanes to operate in unison. Note that B.H.P. is 15% higher, and R.P.M. 5% higher than scheduled.

I. Where adjustable inlet vanes are specified, the fan manufacturer shall submit fan curves corrected for inlet vanes l00% open. Fans with inlet vanes wide open shall have a rating of not less than 99% of catalogued rating without inlet vanes.

J. Vibration Isolation: Vibration isolators shall be provided as specified elsewhere.

K. In cases of fans where more than one speed, specified isolators shall be selected for the lowest speed.

L. The motor and fan base shall be welded or bolted to form a common base to prevent any uncommon physical motion of the fan and motor.

M. All fans that are field assembled, or are 100 hp or over, shall require the services of a factory certified technician to balance and check bearings, pulleys, belts, etc. A report shall be filed attesting to the readiness of the fan to run and that the bearings are properly lubricated. He shall sign the lubrication tag which shall be turned over to the building maintenance personnel.

N. Scroll bypass dampers: Where called for on the plans, provide opposed airfoil blade damper section factory mounted in the fan scroll. Provide control arm suitable for automatic operation. Dampers shall bypass air when minimum modulation point of inlet vane operation has been reached to extend modulation range. As indicated on the schedule, where such dampers are not available from the manufacturer, contractor must provide dampers in the ductwork capable of bypassing at least 50% of the design air quantity back to the inlet or inlets of the fan.

O. Tubular centrifugal fans shall be similar in all requests to the previous description. Housings shall be tubular type to provide straight through inline air flow entrance to discharge Multiple aerodynamic conversion vanes shall be located immediately following the wheel to redirect the air flow in order to minimize noise. Inlet and outlet diameters shall be identical to accommodate a single duct size. All horizontal fans shall be V-belt driven, arrangement 9 with motor mounted on an integral vibration base. All vertical fans shall be V-belt driven, arrangement 9, with shaft and bearings designed to withstand the vertical thrust load, and with motor mounted on an adjustable platform welded securely to the tubular housing. Fan manufacturer shall instruct the contractor in procedures to be followed during storage and prestart up (layup) periods such as hand rotation every 30 days to prevent bearing flat spots. He shall through his factory representative perform pre-start up inspection for lubrication and proper access for maintenance. Signed records shall be submitted as part of the operating instructions.

PART 3 - INSTALLATION

3.1 INSPECTION

A. Examine areas and conditions under which air distribution devices are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Install fans in accordance with manufacturer's written instructions and in accordance with recognized industry practices to ensure that products serve intended function.

2. The contractor shall be fully responsible for coordinating the electrical power feed arrangements (voltage/phase/amperage) as indicated on the electrical contract documents. In the event that the devices delivered to the site do not comply with the electrical feed arrangements, he shall be fully responsible for all costs incurred to remediate the situation.

3. All required supports, hangers, anchors, and guides shall be provided and installed by the contractor.

4. Install fans with clearances for service and maintenance.

3.3 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Verify that shipping, blocking, and bracing are removed.

2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.

3. Verify that cleaning and adjusting are complete.

4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.

5. Adjust belt tension.

6. Adjust damper linkages for proper damper operation.

7. Verify lubrication for bearings and other moving parts.

8. Verify that manual and automatic volume control and fire in connected ductwork systems are in fully open position.

9. Refer to Division 23 Section 23 05 93 "Testing, Adjusting, and Balancing" for testing, adjusting, and balancing procedures.

10. Remove and replace malfunctioning units and retest as specified above.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

END OF SECTION 23 34 00

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SECTION 23 37 15
AIR DISTRIBUTION DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 RELATED SECTIONS

A. Related Sections: The following sections contain requirements that relate to this section:

1. Section 23 05 00, Common Work Results for HVAC.
2. Section 23 05 50, Basic Mechanical Materials and Methods.
3. Section 23 07 10, Fire Resistive Duct Enclosures.
4. Section 23 07 20, Acoustical Duct Lining and Duct Wrap.
5. Section 23 31 13, Metal Ductwork.
6. Division 26 - Electrical.

1.3 SECTION INCLUDES

A. This section includes all components for the air distribution system (other than piping and ductwork - which is specified under another section of this work) including, but not limited to, diffusers, grilles, registers, terminal units, fans, fan coil units, etc.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of air distribution devices, air outlets and inlets of types and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years.

B. All air distribution equipment shall be designed, manufactured and tested in accordance with the latest applicable industry standards including the following:

1. ARI Compliance: Test and rate air devices in accordance with ARI Standards.
2. ANSI/ASHRAE Compliance: Test and rate air devices in accordance with ANSI/ASHRAE Standards.

3. ADC Seal: Provide devices bearing ADC Certified Rating Seal.

4. AMCA Compliance: Test and rate air devices in accordance with AMCA Standards and shall bear AMCA Certified Rating Seal.

5. NFPA Compliance: Install air devices in accordance with NFPA90A "Standard for the Installation of Air Conditioning and Ventilating Systems."

6. UL Compliance: The complete device must be labeled and listed by UL and must be installed to meet their requirements.

7. All devices must be tested and approved for safety in accordance with the latest N.E.C.

1.5 ACOUSTICAL SPECIFICATION FOR DIFFUSERS

A. Air Distribution System; Diffusers, Grilles and Register Noise: Maximum permissible sound power levels in octave bands of airborne transmission through the combination of grille, registers, diffusers, or related pressure reducing devices, when operated at the maximum inlet pressure and cfm in installed condition per plans and specifications shall be as follows:

1. Private Offices NC 35

2. Corridors NC 40

3. Bathrooms NC 45

4. Storage Rooms NC 45

B. NC levels are defined as below:

1. AIR DISTRIBUTION SYSTEM EQUIPMENT/TERMINAL DEVICE NOISE

MAX PWL (dB re 10 12 Watt)

Octave Band	NC 35	NC 40	NC 45	NC 50+
1	62	66	68	70
2	56	60	63	66
3	49	54	58	62
4	46	51	56	61
5	43	48	53	58
6	42	47	52	57
7	41	46	51	56
8	42	47	52	57

1.6 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data for air outlets and inlets including the following:

1. Manufacturer's technical product data, including performance data for each size and type of air distribution device furnished; schedule showing drawing designation, room location, number furnished, model number, size and accessories furnished and installation and start-up instructions.

2. Data sheet for each type of air outlet and inlet, and accessory furnished, indicating construction, finish and mounting details.

3. Performance data for each type of air outlet and inlet furnished, including aspiration ability, temperature and velocity traverses, throw and drop, and noise criteria ratings. Indicate selections on data.

B. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and methods of assembly of components.

C. Wiring Diagrams: Submit ladder-type wiring diagrams for electric power and control components, clearly indicating required field electrical connections.

D. Maintenance Data: Submit maintenance data and parts list for each type of air terminal, including "trouble shooting" maintenance guide. Include this data, product data, shop drawings, and maintenance data in maintenance manual, in accordance with requirements of General Conditions.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver air distribution devices wrapped in factory-fabricated fiber-board type containers. Identify on outside of container type of device and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.

B. Store air outlets and inlets in original cartons and protect from weather and construction work traffic. Where possible, store indoors, when necessary to store outdoors, store above grade and enclose with waterproof wrapping.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. If it complies with these Specifications, ceiling supply and return diffusers manufactured by one of the following manufacturers will be acceptable:

1. Nailor Industries

2. Titus

3. Anemostat

4. Carnes

5. Krueger

6. or Approved equal

2.2 GRILLES, REGISTERS, DIFFUSERS, CEILING OUTLETS AND RAISED FLOOR SUPPLY DIFFUSERS

A. All grilles, registers, ceiling outlets and floor outlets shall be furnished and installed as shown on the contract documents and as specified herein.

B. All grilles, registers, ceiling outlets and floor outlets shall be equal to the types indicated on the Drawings and specified herein.

C. Devices shall be aluminum or steel and shall be factory finished with baked white enamel finish or extruded aluminum finish.

D. Equipment manufacturer shall submit engineering data in a manner to facilitate convenient review of the following factors:

1. Throw, terminal velocity, noise criteria (NC), sound power, static pressure and total pressure of each type and size of air outlet.

2. Supply air units shall distribute the specified quantity of air evenly throughout the occupied zone uniformly, draftlessly and noiselessly. Sound levels shall not exceed ratings as required in the noise level requirements.

3. For devices installed in plaster construction, supply plaster frames as required for setting.

4. All design and margin construction shall be coordinated with architectural requirements. Plaster frames where required shall be constructed of same material and finish as air terminal.

5. The air outlet manufacturer shall review architectural plans and shall be responsible for furnishing all air outlets with frames and margins which will be compatible with ceiling construction.

E. All ceiling diffusers shall be furnished and installed with an equalizing deflector and volume damper. If diffuser is to be used for return air, omit equalizing deflector. Supply diffusers shall be gasketed to prevent streakage, unless installed in T-bar or concealed spline ceiling. Blank-off or sectorizing baffles shall be furnished as indicated. Diffusers shall be aluminum or steel and shall be factory finished with baked enamel finish of color selected by Commissioner.

F. Ceiling diffusers shall be round, square, rectangular or linear as indicated and as listed herewith, or as approved.

1. Circular Diffuser with round neck shall be similar to:

a.	Titus	-	TMRA-3
b.	Carnes	-	DA-5
c.	Anemostat	-	C-27
d.	Krueger	-	RA-2
e.	Price Company	-	RCD
f.	or approved equal		

2. Square Diffuser with round neck shall be similar to:

a.	Titus	-	TMS
b.	Carnes	-	SFA
c.	Anemostat	-	E-1
d.	Krueger	-	1400
e.	Price Company	-	SCD
f.	or approved equal		

3. Square or Rectangular Multi-Pattern Diffuser with square or rectangular neck shall be similar to:

a.	Titus	-	TDC
b.	Carnes	-	K
c.	Anemostat	-	DF
d.	Krueger	-	SH
e.	Price Company	-	AMD
f.	or approved equal		

4. Diffuser one, two, three or four-way pattern discharge as shown on the plans.

5. Perforated Face Diffuser with square or rectangular neck shall be similar to:

a. Titus - PAS

b. Carnes - 4300

c. Anemostat - PLDV

d. Krueger - 4500

e. Price Company - PDS

f. or approved equal

6. Slot Type Linear Diffuser shall be similar to:

a. Titus - ML

b. Carnes - 4800

c. Anemostat - SLAD

d. Krueger - 1900 (1800)

e. Price Company - SDS

f. or approved equal

G. Diffuser shall be constructed of extruded aluminum with quick positioning pattern control permitting 180 degree air pattern adjustment. Diffuser shall have dampers which operate separate from pattern control. Inner pattern control and brackets shall be black coated. Slot opening shall be as shown on plans.

H. Linear Grilles shall be similar to:

1. Titus - CT

2. Carnes - C

3. Anemostat - AL

4. Krueger - 1500-1600

5. Price Company - LBD

6. or approved equal

I. Grilles shall be constructed of extruded aluminum with fixed extruded bars set at specified deflections. Where used for floor installation, bars shall be reinforced. Where register is indicated, furnished opposed blade dampers.

J. Supply Air Registers:

1. Shall be of the double deflection type with key operated opposed blade damper, similar to:

a.	Titus	-	272RS5
b.	Carnes	-	200V
c.	Anemostat	-	SZVO
d.	Krueger	-	880V-OBD
e.	Price Company	-	520
f.	or approved equal		

2. Supply air grilles shall be identical to above with omission of opposed blade volume damper.

K. Return and Exhaust Air Registers:

1. Shall be of the fixed bar type, with blades set at either 0° or 45°, similar to:

a.	Titus	-	23RL5
b.	Carnes	-	600H
c.	Anemostat	-	S3HOD
d.	Krueger	-	S80H-OBD
e.	Price Company	-	530
f.	or approved equal		

2. Shall be furnished with key operated opposed blade damper. Return or exhaust grille shall be identical to above with omission of opposed blade damper.

L. Transfer Grilles:

1. Shall match return grilles in appearance, similar to:

a.	Titus	-	23RL
b.	Carnes	-	650H
c.	Anemostat	-	234D
d.	Krueger	-	S80H-OBD

e. Price Company - 510

f. or approved equal

M. Accessories:

1. Where indicated, registers or grilles shall be provided with adjustable volume and directional control device, similar to:

a. Titus - AG 225

b. Carnes - 800

c. Anemostat - TL-2

d. Krueger - VC-8

e. Price Company - AE

f. or approved equal

PART 3 - INSTALLATION

3.1 INSPECTION

A. Examine areas and conditions under which air distribution devices are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. All air distribution equipment shall be installed in accordance with the latest industry standards, per the manufacturer's recommendations and as indicated on the Drawings.

B. Equipment and ductwork shall be rigidly supported and provided with approved restraints to maintain the equipment and ductwork in without excessive motion. All ductwork restraints shall be installed with a maximum spacing to limit transmitted forces to the building structure to acceptable limits. Refer to Division 23 section 230547 'Vibration Isolation (Non Seismic).

C. General: Install air devices in accordance with manufacturer’s written instructions and in accordance with recognized industry practices to ensure that products serve intended function.

D. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Commissioner for a determination of final location. Changes in duct size and/or location shall be made where necessary to conform to site conditions without additional cost to the City of New York.

E. All ductwork and distribution devices indicated on drawings is schematic. Therefore, changes in duct size and/or location shall be made where necessary to conform to space conditions, without additional cost to the City of New York.

F. Install diffusers, register, and grilles with airtight connection to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

G. All ductwork; flues, register boxes, air chambers, dampers, and all auxiliary work of any kind, necessary to make the various air conditioning, ventilating and heating systems of the building complete and ready for operation, shall be furnished and installed.

H. The specifications refer to SMACNA standards, which shall be considered minimal. If NYC Building Code require other standards than described in SMACNA, NYC Building Code shall govern.

I. Dimensions given on drawings of all acoustically lined ducts shall be the clear inside dimension.

J. Furnish and install manual dampers, fire dampers, registers, grilles, register boxes, access doors, sound traps, etc., as described herein and elsewhere in the specifications and as required for a complete system, ready for operation.

K. Exact dimensions of register boxes must await approval of grilles, and exact locations shall be submitted for approval, otherwise any changes directed after installation shall be made without additional cost. All register boxes and other opening of the ductwork must be kept tightly closed during construction to keep out rubbish.

L. The contractor shall be fully responsible for coordinating the electrical power feed arrangements (voltage/phase/amperage) for all devices requiring same, as indicated on the electrical contract documents. In the event that the devices delivered to the site do not comply with the electrical feed arrangements, he shall be fully responsible for all costs incurred to remediate the situation.

3.3 FACTORY TESTING

A. All air distribution equipment shall be tested in accordance with the latest applicable industry standards and as specified herein.

END OF SECTION 23 37 15

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SECTION 23 74 13
PACKAGED ROOFTOP AIR CONDITIONING UNITS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. Package roof top unit.

B. Heat exchanger.

C. Refrigeration components.

D. Unit operating controls.

E. Electrical power connections.

F. Operation and maintenance service.

1.3 RELATED SECTIONS

A. Section 23 05 13 – Common Motor Requirements for HVAC Equipment.

B. Section 23 05 47 – Vibration Isolation (Non Seismic)

C. Section 23 07 00 – HVAC Insulation.

D. Division 26 Electrical.

1.4 REFERENCES

A. NFPA 90 A & B - Installation of Air Conditioning and Ventilation Systems and Installation of Warm Air Heating and Air Conditioning Systems.

B. ANSI/ASHRAE 15 - Safety Code for Mechanical Refrigeration.

C. AHRI 360 - Commercial and Industrial Unitary Air Conditioning Equipment testing and rating standard.

D. ANSI/ASHRAE 37 - Testing Unitary Air Conditioning and Heat Pump Equipment.

E. ANSI/ASHRAE/IESNA 90.1-2013 - Energy Standard for New Buildings Except Low-Rise Residential Buildings.

F. ANSI Z21.47/UL1995 - Unitary Air Conditioning Standard for safety requirements.

G. AHRI 370 - Sound Rating of Large Outdoor Refrigerating and Air Conditioning Equipment.

H. ANSI/NFPA 70-1995 - National Electric Code.

1.5 SUBMITTALS

A. Submit unit performance data including: capacity, nominal and operating performance.

B. Submit Mechanical Specifications for unit and accessories describing construction, components and options.

C. Submit shop drawings indicating overall dimensions as well as installation, operation and services clearances. Indicate lift points and recommendations and center of gravity. Indicate unit shipping, installation and operating weights including dimensions.

D. Submit data on electrical requirements and connection points. Include recommended wire and fuse sizes or MCA, sequence of operation, safety and start-up instructions.

1.6 DELIVERY, STORAGE and HANDLING

A. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.

B. Protect units from physical damage. Leave factory shipping covers in place until installation.

1.7 WARRANTY

A. Provide parts warranty for one year from start-up or 18 months from shipment, whichever occurs first.

B. Provide five year extended warranty for compressors.

C. Provide ten year heat exchanger limited warranty – parts

1.8 MAINTENANCE SERVICE

A. Furnish complete parts and labor service and maintenance of packaged roof top units for 1 year from Date of Substantial Completion by the manufacturer.

B. Provide maintenance service with a two month interval as maximum time period between calls. Provide 24 hour emergency service on breakdowns and malfunctions.

C. Include maintenance items as outlined in manufacturer's operating and maintenance data.

D. Submit copy of service call work order or report and include description of work performed.

1.9 REGULATORY REQUIREMENTS

A. Unit shall conform to ANSI Z21.47/UL1995 for construction of packaged air conditioner

PART 2 PRODUCTS

2.1 SUMMARY

A. The contractor shall furnish and install package rooftop unit(s) as shown and scheduled on the contract documents. The unit(s) shall be installed in accordance with this specification and perform at the specified conditions as scheduled.

B. Manufacturers

1. Trane: Foundation Rooftop Unit.

2. Johnson Controls,

3. Greenheck,

4. Or approved equal

2.2 GENERAL UNIT DESCRIPTION

A. Units furnished and installed shall be Gas/Electric packaged rooftops as scheduled on contract documents and these specifications. Cooling capacity ratings shall be based on AHRI Standard 360. Units shall consist of insulated weather-tight casing with compressors, air-cooled condenser coils, condenser fans, evaporator coils, return-air filters, supply motors and unit controls.

B. The units shall be dedicated horizontal airflow. The operating range shall be between 115°F and 40°F in cooling as is standard from the factory for all units. Cooling performance shall be rated in accordance with ARI testing procedures.

C. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory prior to shipment.

D. Wiring internal to the unit shall be colored and numbered for simplified identification.

E. Units shall be UL listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 3rd Edition.

F. Units shall have labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.

2.3 UNIT CASING

A. Cabinet: Galvanized steel, phosphatized, and finished with an air-dry paint coating with removable access panels. Structural members shall be 16 gauge with access doors and removable panels of minimum 20 gauge.

B. Units cabinet surface shall be tested 1000 hours in salt spray test in compliance with ASTM B117.

C. Cabinet construction shall allow for all service/ maintenance from one side of the unit.

D. Access Panels: Water- and air-tight panels with handles shall provide access to filters, heating section, return air fan section, supply air fan section, evaporator coil section, and unit control section.

E. Insulation: Provide 1/2 inch thick coated fiberglass insulation on all exterior panels in contact with the return and conditioned air stream.

F. The base of the unit shall have provisions for forklift and crane lifting

2.4 AIR FILTERS

A. Air Filters: Factory installed filters shall mount integral within the unit and shall be accessible through access panels. Two inch thick glass fiber disposable media filters shall be provided.

2.5 FANS AND MOTORS

A. Provide evaporator fan section with forward curved, double width, double inlet, centrifugal type fan.

B. Provide self-aligning, grease lubricated, ball or sleeve bearings with permanent lubrication fittings.

C. Provide units 15 tons and above with belt driven, supply fans with adjustable motor sheaves.

D. Outdoor and Indoor Fan shall be permanently lubricated and have internal thermal overload protection.

E. Outdoor fans shall be direct drive, statically and dynamically balanced, draw through in the vertical discharge position.

F. Low noise condenser fans: Provide vertical discharge, direct drive, low-noise axial fans with composite blades. Fans shall be statically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing. A Diffusor should be provided in order to further reduce sound power levels as per the sound specification.

G. Provide shafts constructed of solid hot rolled steel, ground and polished, with key-way, and protectively coated with lubricating oil.

H. Provide Dedicated Direct Digital Control system for automated head pressure monitoring and regulation. System to operate condenser fans with quiet multispeed controls to maintain required condenser section pressure and temperature conditions. Unit to meet all acoustical parameters outlined on the rooftop unit schedule and other contract documents.

2.6 MULTI-SPEED FAN SYSTEM

A. Provide evaporator fan section with forward curved, double width, double inlet, centrifugal type fan.

B. Provide self-aligning, grease lubricated, ball or sleeve bearings with permanent lubrication fittings.

C. Unit shall be provided with bypass mode operation. This operation is field wired to bypass VFD in the event of VFD failure.

D. Multi-Speed fan System - unit shall be provided with two-speed indoor fan system designed for use in applications for meeting the minimum requirements of NYC Energy Code.

2.7 GAS FIRED HEATING SECTION

A. Completely assembled and factory installed heating system shall be integral to unit, UL or CSA approved specifically for outdoor applications for use downstream from refrigerant cooling coils. Threaded connection with plug or cap provided.

B. Heating section shall be factory run tested prior to shipment.

C. Gas Burner shall be forced combustion type power burner, negative pressure gas valve, manual shut-off, hot surface ignition, and flame sensing safety control.

D. Gas Burner Safety Controls: Provide safety controls for the proving of combustion air prior to ignition, and continuous flame supervision. Upon a failure to ignite, two attempts of ignition will occur before lockout of the ignition system.

E. Combustion blower shall be centrifugal type fan with built- in thermal overload protection on fan motor.

F. Stainless Heat Exchanger: Gas heat exchanger shall be of drum and tube design constructed from a minimum 304 Grade stainless steel.

G. Limit controls: High temperature limit controls will shut off gas flow in the event of excessive temperatures resulting from restricted indoor airflow or loss of indoor airflow.

2.8 EVAPORATOR COIL

A. Provide configured aluminum fin surface mechanically bonded to copper tubing coil.

B. Provide an independent expansion device for each refrigeration circuit. Factory pressure test at 450 psig and leak test at 200 psig.

C. Provide drain pan for base of evaporator coil constructed of, stainless steel non-corrosive material with external connections.

2.9 CONDENSER SECTION

A. Provide all-aluminum microchannel coils. Factory pressure test to 450 psig.

B. Provide vertical discharge, direct drive, low-noise HyBlade axial fans with composite blades. Fans shall be statically and dynamically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing. A Diffusor should be provided in order to further reduce sound power levels as per the sound specifications of the project.

2.10 REFRIGERATION SYSTEM

A. Compressors: Provide scroll compressor with direct drive operating at 3600 rpm. Integral centrifugal oil pump. Provide suction gas cooled motor with winding temperature limits and compressor overloads.

B. Units shall have cooling capabilities down to 40 degree F as standard. For field-installed low ambient accessory, the manufacturer shall provide a factory-authorized service technician that will assure proper installation and operation.

C. Provide each unit with R410a refrigerant circuit(s) factory-supplied completely piped with liquid line filter-drier, suction and liquid line pressure ports.

D. A compressor enclosure should be provided to reduce the noise from the compressor. A sealed 14 gauge sheet metal box shall be installed around the compressors and lined with 1” sounds absorbing material - fabricated of 2 lb/cu ft of Flexible PVC vinyl (polyvinylchloride). This will assist in further reducing sound levels to meet the sound specification for the rooftop unit for the project.

2.11 POWERED EXHAUST SECTION

A. Provide a factory supplied, field installed 100% power exhaust assembly that shall assist the barometric relief damper in the economizer in relieving building pressurization where shown on equipment schedule.

2.12 OUTDOOR AIR SECTION

A. Provide a fully integrated dry-bulb, 100% modulating outside air economizer with unit return damper, minimum position setting, preset linkage, wiring harness with plug. Unit operation is through primary temperature controls that automatically modulate dampers to maintain space temperature conditions.

B. Provide economizer with dry bulb economizer control.

C. Provide adjustable minimum position control located in the economizer section of the unit.

D. Provide spring return motor for outside air damper closure during unit shutdown or power interruption.

2.13 OPERATING CONTROLS

A. Provide factory-wired roof top units with 24 volt control circuit with control transformers, contactor pressure lugs or terminal block for power wiring. Contractor to provide non-fused disconnect. Units shall have single point power connections. Field wiring of zone controls to be NEC Class II.

2.14 STAGING CONTROLS

A. Provide conventional thermostat interface module for application to a field supplied thermostat device or generic automation system.

B. Unit Sound Rating Number shall be maximum values shown on the mechanical schedule per octave band based on AHRI 270 and AHRI 370.

PART 3 EXECUTION

3.1 EXAMINATION

A. Contractor shall verify that roof is ready to receive work and opening dimensions are as shown on mechanical drawings and reconfirmed in unit submittals.

B. Contractor shall verify that proper power supply is available.

3.2 INSTALLATION

A. Contractor shall install in accordance with manufacturer's instructions.

B. Mount units on factory built roof mounting frame providing watertight enclosure to protect ductwork and utility services. Refer to structural drawing for additional details.

PART 4 SEQUENCE OF OPERATIONS

4.1 PACKAGED ROOFTOP AIR HANDLING UNITS CONTROLS

A. General:

1. Service:

a. The air conditioning unit (AC) shall be controlled by a Direct Digital Control controller furnished, installed, and wired by the air handling unit manufacturer. This controller shall be referred to as AC Direct Digital Control controller.

b. Furnish, install, and wire all devices necessary for complete operation of the air handling unit including space thermostats, etc.. Furnish, install, and wire the communications bus for the AC unit Direct Digital Control controllers.

c. Furnish, install, and wire all devices needed in addition to those specified to control the air handling unit for setback and setup operation during unoccupied mode as well as warm-up and cool-down modes.

B. System Off:

1. Supply Fan: Off.

2. Outside Air and Exhaust Dampers: Closed.

3. Return Air Damper: Open.

4. DX Cooling: Off.

5. Gas Heat: Off.

C. System Start:

1. The air-handling unit shall be started based upon a start time optimization program, time of day schedule, or manual command.

2. When the air-handling unit is indexed to operate, all return air dampers, dampers shall open. Where required, hard-wired damper end switches shall prove damper status prior to fan start.

D. System Run:

1. Unoccupied Heating Mode:

a. Supply Fan: Supply fan shall run if the space temperature falls below 60° F and continue to run until the space temperature exceeds 64° F. The unit shall run a minimum of ½ hour after start up.

b. Economizer Dampers: Outside air and exhaust dampers are closed and return air damper is open.

c. DX Cooling: Off.

d. Gas Heat: Modulate burner to maintain a discharge air temperature at 80°F when the supply and return fans are on.

2. Unoccupied Cooling Mode:

a. Supply Fan: Cycle supply fan to maintain space temperature at the unoccupied cooling setpoint at 80F (adj.). The unit shall run a minimum of ½ hour after start up.

b. Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer setpoint.

(i) Economizer Available: Outside air and exhaust dampers are fully open and return air damper is fully closed when the fan is on.

(ii) Economizer Not Available: Outside air and exhaust dampers are fully closed and return air damper is fully open.

c. DX Cooling: Stage on to provide full cooling when the supply fan is on and when economizer is not available.

d. Heat: Off.

3. Warm-up Mode:

a. Shall be invoked when the return air temperature is below 60° F upon start-up.

b. Supply Fan: Supply fan shall start and run continuously.

c. Economizer Dampers: Outside air and exhaust dampers are fully closed and return air damper is fully open.

d. DX Cooling: Off.

e. Heat: Modulate burner to maintain the discharge air temperature at 80°F on startup and reset linearly and inversely from 80°F to 70°F as the return air temperature increases from 60°F to 70°F.

4. Cool-down Mode:

   a. Shall be invoked when the return air temperature is above 80° F upon start-up.

   b. Supply Fan: Supply fan shall start and run continuously.

   c. Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below the dry bulb economizer setpoint.

      (i) Economizer Available: Economizer dampers shall modulate in sequence with the cooling coil valve subject to a mixed air low limit of 40° F.

      (ii) Economizer Not Available: Outside air and exhaust dampers shall be at minimum position.

   d. DX Cooling: Stage on in sequence with the economizer dampers to maintain the discharge air temperature at 55° F at start-up and reset linearly and inversely from 55° F to 65° F as the return air temperature decreases from 80° F to 70° F.

   e. Heat: Off.

5. Occupied Mode:

   a. Supply Fan: Supply fan shall run continuously.

   b. Economizer Dampers: Economizer dampers shall be enabled to provide free cooling when the outside air temperature is below 55° F.

      (i) Economizer Available: Economizer dampers shall modulate in sequence with the cooling coil valve subject to a mixed air low limit of 50° F.

      (ii) Economizer Not Available: Outside air and exhaust dampers shall be at minimum position.

   c. DX Cooling: Modulate in sequence with the economizer dampers to maintain the discharge air temperature at setpoint as reset by space temperature. The discharge setpoint shall be reset from 55° F to 65° F linearly as the average of the space temperature sensors decreases from 75° F to 65° F.

   d. Heat: Modulate burner in sequence with the DX cooling to maintain the discharge air temperature setpoint when the supply fan is on.

E. System Stop:

1. When the air-handling unit is indexed to shut down, the supply fan shall stop.

2. Dampers, control valves and electric heat shall be indexed to their “System Off” conditions.

F. Safeties And Alarms:

1. Emergency Shutdown:

a. Duct smoke detector(s) shall stop the supply and return fans and annunciate an alarm when products of combustion are detected in the air stream. The duct smoke detectors shall be wired into the building fire alarm system.

b. The supply and return fans shall be interlocked to shut down upon a command from the building fire alarm system. Dampers and control valves shall be indexed to their “System Off” conditions.

END OF SECTION 23 74 13

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SECTION 26 05 00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

1. Submittals.
2. Coordination drawings.
3. Record documents.
4. Maintenance manuals.
5. Rough-ins.
6. Electrical installations.
7. Cutting and patching.
8. Codes, Permits and Inspections.
9. Definitions and Interpretations.

1.3 SUBMITTALS

A. General: Refer to DDC General Conditions Section 013300 "Submittal Procedures.

1.4 COORDINATION DRAWINGS

A. Prepare coordination drawings in accordance with General Conditions to a scale of 1/4"=1'-0" (1:50) or larger; detailing major elements, components, and systems of electrical equipment and materials in relationship with other systems, installations, and building components in spaces such as eectric switchgear room, and electric closets. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to the efficient flow of the Work, including (but not necessarily limited to) the following:

1. Indicate the proposed locations of major raceway systems, equipment, and materials. Include the following:

   a. Equipment connections and support details.

2. Prepare floor plans, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

1.5 MAINTENANCE MANUALS

A. Prepare maintenance manuals in accordance with General Conditions. In addition to the requirements specified in General Conditions, include the following information for major equipment items such as lighting controls, lighting fixtures, and other items as specified elsewhere.

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.

2. Manufacturer's printed operating procedures include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions.

3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

4. Servicing instructions.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

1.7 CODES, PERMITS AND INSPECTIONS

A. All work shall meet or exceed the latest requirements of all national, state, county, municipal, and other authorities exercising jurisdiction over electrical construction work and the project. Examples of such codes are as follows: 2011 NYC Electrical code, 2014 NYC Building Code, and all other applicable codes and local laws.

B. All required permits and inspection certificates shall be obtained, paid for, and made available at the completion of the work.

C. Any portion of the work which is not subject to the requirements of an electric code published by a specific authority having jurisdiction shall be governed by the National Electrical Code and other applicable sections of the National Fire Code, as published by the National Fire Protection Association.

D. Equipment, material, layout and installation provided as part of the electrical work shall conform to the requirements of the New York city Electrical Code, the Mechanical Equipment Acceptance Division of the Building Department (MEA), the Board of Standards and Appeals (BSA), and other agencies having jurisdiction.

E. Installation procedures, methods and conditions shall comply with the latest requirements of the Federal Occupational Safety and Health Administration (OSHA).

F. All equipment furnished as part of the electrical work shall comply with the latest editions of all applicable state and municipal "energy codes," including but not limited to 2016 New York City Energy Conservation code or ASHRAE 90.1-2013. Provide certification from the equipment suppliers for all energy-consuming equipment that the equipment fully complies with these codes. Equipment submissions will not be accepted for review unless accompanied by such certification in writing.

1.8 GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from defects. Any defective materials or workmanship as well as damage to the existing conditions shall be replaced or repaired as directed for the duration of stipulated guaranteed periods.

B. The duration of guarantee periods following the date of beneficial use of the system shall be one year. Beneficial use is defined as operation of the system to obtain its intended use.

C. Non-durable items such as electric lamps, shall be replaced up to the date of acceptance, such that they shall have had no more than 100 hours use prior to this date.

D. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of electrical equipment for which such certifications is required.

1.9 DEFINITIONS AND INTERPRETATIONS

A. Regardless of their usage in codes or other industry standards, certain words as used in the drawings or specifications for the electrical work, shall be understood to have the specific meanings ascribed to them in the following list:-

1. "Circuitry" -- Any electric work (not limited to light and power distribution) which consists of wires, cables, raceways, and/or specialty wiring method assemblies taken all together complete with associated junction boxes, pull boxes, outlet boxes, joints, couplings, splices and connections except where limited to a lesser meaning by specific description.

2. "Wiring" -- Same as Circuitry.

3. "Circuit" -- Any specific run of circuitry.

4. "Branch Circuit" -- Any light and power distribution system circuit which, at its load end, is directly connected to one or more electrical energy consuming items with no overcurrent protection devices interposed, other than (where required) those protecting the energy consuming items from overloading or overheating.

5. "Appliance Panel" -- Any panel, used in a light and power distribution system, containing single pole and/or multipole branches rated in various sizes.

6. "Lighting Panel" -- Any panel used in a light and power distribution system, having all (or the majority) of its branches single pole and rated the same.

7. "Concealed" (as applied to circuitry) -- Covered completely by building materials, except for penetrations (by boxes and fittings) to a level flush with the surface as necessitated by functional or specified accessibility requirements.

8. "Exposed" (as applied to circuitry) -- Not covered in any way by building materials.

9. "Subject to Mechanical Damage" -- Exposed within seven feet of the floor in mechanical rooms, manufacturing spaces, vehicular spaces, or other spaces where heavy items (over 100 pounds) are moved around or rigged as a common practice or as required for replacement purposes.

B. The restriction of conductors in wires to copper, as specified elsewhere, shall be understood to also apply to all conductors. This restriction shall apply equally to all such equipment regardless of indications (or lack thereof) elsewhere to the contrary. Aluminum will not be acceptable.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 ROUGH-IN

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

B. Refer to equipment specifications in Divisions 02 through 26 and the DDC General Conditions for rough-in requirements.

3.2 ELECTRICAL INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.

2. Verify all dimensions by field measurements.

3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.

4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

5. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.

6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

7. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Commissioner.

8. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

9. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

10. Coordinate location of access panels or doors where outlet boxes, junction boxes, or equipment are concealed behind finished surfaces.

11. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

B. Locations of all devices, fixtures, and other visible components shall be as indicated on the architectural drawings. Mounting heights shall be as specified in Division 26 Section 260533 “Raceways and Boxes”.

C. Each piece of mechanical equipment located outside the building or on the roof shall be within 25 feet (7 m) of a duplex outlet. Where necessary to meet this criteria, provide duplex outlets in addition to those devices shown on the drawings. Each shall be complete with waterproof cover and integral GFI protection, and 20 ampere circuitry to the nearest 120 volt panel.

3.3 CUTTING AND PATCHING

A. General: Perform cutting and patching in accordance with General Conditions. In addition to the requirements specified in General Conditions, the following requirements apply:

1. Perform cutting, fitting, and patching of electrical equipment and materials required to:

    a. Remove and replace Work not conforming to requirements of the Contract Documents.

    b. Install equipment and materials in existing structures.

2. Cut, remove, and legally dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new Work.

3. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

4. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

5. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

6. Patch existing finished surfaces and building components using new materials matching existing materials and experienced Installers.

3.4 ELECTRICAL DEMOLITION

A. The project contains existing electrical installations. Integrate the existing installations into the overall project as described below.

B. Except where it is integrated into a new installation, maintain all existing electrical work operating and intact by including all procedures and materials necessary to:

1. Maintain the accessibility and functionality of all outlets, junction boxes, pull boxes, wiring devices, panels, switchgear, fixtures and the like, that may be covered over or interfered with by new construction work of existing conditions.

2. Maintain continuity in the existing light and power circuitry, communications and signal circuitry or other electric runs which must be disrupted to allow the new work to proceed.

3. Cut back and terminate at accessible points, in a safe manner, all live wiring made unnecessary or obsolete by the new construction.

C. No portion of existing electrical installations shall be used to make up any of the required electrical work except as follows:

1. Equipment and devices, as specifically indicated.

2. Raceways with associated junction boxes and pull boxes) only for feeders as specifically indicated.

3. Raceways (with associated junction boxes and pull boxes) and cables for feeders as specifically indicated.

4. Concealed raceways (with associated outlet boxes) only for lighting and appliance branch circuitry to the maximum extent possible.

D. Outages of existing electrical systems necessitated by the new construction work shall be in accordance with a schedule issued in the field by the Commissioner. Include all electric work, overtime labor and supervision necessary to adhere to this schedule.

E. Any existing electrical work which is pulled out or cut away in compliance with the above requirements shall be removed from the site as if it were rubbish.

F. During demolition procedures, provide all necessary protection for existing electric work required for reuse

3.5 REFINISHING AND TOUCH UP PAINTING

A. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.

B. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.

C. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

D. Repair damage to paint finishes with matching touch up coating recommended by manufacturer.

3.6 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:

1. Cutting and patching for electrical construction.

2. Touch up painting.

3.7 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION 26 05 00

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SECTION 26 05 19
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes building wires and cables and associated splices, connectors, and terminations for wiring systems rated 600 volts and less.

C. Related Section: The following Sections contain requirements that relate to this Section:

1. Section 26 05 00 “Common Work Results for Electrical Work”.

1.3 SUBMITTALS

A. Product Data: for each type of product indicated.

B. Field Quality Control Test Reports.

1.4 QUALITY ASSURANCE

A. Listing and Labeling: Provide products specified in this Section that are Underwriters Laboratories listed and labeled.

1. The Terms "Listed and Labeled": As defined in the "National Electrical Code," Article 100.

B. Comply with NFPA 70, as amended by NYC DOB and FDNY.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers:

1. American Insulated Wire Corp.; a Leviton Company.

2. General Cable Corporation.

3. Southwire Company, Inc.

4. Multiconductor Cable: Armored cable, Type ACTHH, Metal-clad cable, Type MC.

5. or Approved Equal.

2.2 CONNECTORS AND SPLICES

A. Manufacturers:

1. AFC Cable Systems, Inc.

2. AMP Incorporated/Tyco International.

3. Hubbell/Anderson.

4. O-Z/Gedney; EGS Electrical Group LLC.

5. Thomas & Betts.

6. 3M Company; Electrical Products Division.

7. or Approved Equal.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 WIRE AND INSULATION APPLICATIONS

A. Utilize copper conductors with THWN, THHN or XHHW insulation, except provide THHW-2, THWN-2 or XHHW-2 insulation for conductors 1/0 and larger in "wet" locations. Conductors utilized in underground installations shall be UL Listed for use in wet locations. Conductors shall be run in raceways as described in Section 26 260533 “Raceways and Boxes”. Type THHW and THHW-2 shall not be utilized where excluded by conduit sizing. Type THWN shall not be utilized for connection to 100 percent rated overcurrent devices.

B. Type AC cables shall comply with the following:

1. Where used as the wiring method for branch circuit runs which have been specified elsewhere (or called for on the drawings).

C. For low voltage systems whose circuits are not power limited Class 2 or Class 3 (in accordance with the requirements of Article 725 of the National Electrical Code), utilize copper conductors having TFN insulation for sizes #16 AWG and smaller, and type THHN or THWN for sizes #14 AWG and larger. Wires shall be run in electric metallic tubing.

3.2 INSTALLATION

A. Conceal cables in finished walls, ceilings and floors unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.

E. Support cables according to Division 26 Section 26 05 29 “Supporting Devices”.

F. Identify wires and cables according to Division 26 Section 26 05 53 "Electrical Identification".

3.3 CONNECTIONS:

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Maintain all splices and joints in removable cover boxes or cabinets where they may be easily inspected.

D. Locate each completed conductor splice or joint in the outlet box, junction box, or pull box containing it, so that it is accessible from the removable cover side of the box.

E. Join solid conductors #8 AWG and smaller by securely twisting them together and soldering, or by using insulated coiled steel spring "wire nut" type connectors. Exclude "wire nuts" employing non-expandable springs. Exclude push-on type connectors. Terminate conductors #8 AWG and smaller by means of a neat and fast holding application of the conductors directly to the binding screws or terminals of the equipment or devices to be connected. Terminals and connectors shall be U.L. approved specifically for the application.

F. Join, tap and terminate stranded conductors #6 AWG and larger by means of solder sleeves, taps and lugs with applied solder or by means of pressure indent type connectors, or mechanical connectors utilizing ball tipped set screws. Apply pressure indent type connectors, utilizing tools manufactured specifically for the purpose and having features preventing their release until the full pressure has been exerted on the lug or connector. Factory installed equipment or device terminals shall be of types UL approved specifically for the application.

G. Except where wire nuts are used, build up insulation over conductor joints to a value equal both in thickness and dielectric strength to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape; by means of half-lapped layers of approved plastic electric insulating tape; or by means of split insulating casings manufactured specifically to insulate the particular connector and conductor, and fastened with stainless steel or non-metallic snaps or clips.

H. Exclude splicing procedures for neutral conductors in lighting and appliance branch circuitry which utilize device terminals as the splicing points.

I. Exclude joints or terminations utilizing solder in any conductors used for grounding or bonding purposes.

J. Exclude all but solder or pressure indent type joints in conductors used for signaling or communications purposes.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

B. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint to match existing conditions.

C. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials. Whenever, the existing fire protected is affected.

3.5 INSTALLATION OF CIRCUITRY FOR MISCELLANEOUS LOW VOLTAGE SYSTEMS:

A. Installation shall comply with requirements described in this Section. In particular, note the following circuitry requirements for low voltage systems:

1. Wiring for miscellaneous low voltage systems may be run without conduit - subject to the approval of the NYC DOB and NYC electrical codes - except where prohibited by other sections of these specifications or by indications on the drawings.

2. Where conduit is required, it shall be steel electric metallic tubing (EMT), except that it shall be galvanized intermediate steel conduit where located within 8 feet (2.4 m) of the floor in mechanical spaces (or is otherwise exposed to mechanical damage.

3. Wires and cables shall have characteristics in compliance with Articles 725 (as applicable) of the National Electrical Code as described elsewhere in the specifications or drawings for this project, and shall be U.L. listed in accordance therewith.

4. Where wires and cables are permitted to be run without conduit, they shall be independently supported from the building structure or ceiling suspension systems at intervals not exceeding four feet on center, utilizing cable supports specifically approved for the purpose. Wires and cables shall not rest on or depend on support from suspended ceiling media (tiles, lath, plaster, as well as splines, runners or bars in the plane of the ceiling), nor shall they be supported from pipes, ducts or conduits. Where cables are bundled together, separate bundles shall be provided separately for each type of cabling and separately for each independent system. Bundling and/or supporting ties shall be of a type suitable for use in a ceiling air handling plenum regardless of whether or not installed in a plenum.

5. Cables shall be tagged or labeled at each termination point and in each intermediate junction box, pull box or cabinet through which they pass.

6. Comply with applicable requirements for locating and routing circuitry, for installing circuitry, and for fire-stopping as described in spec section 078413 “Fire Stopping and Smokeseals.”

3.6 FIELD QUALITY CONTROL

A. Testing: Perform the following field quality-control testing:

1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.

2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.2. Certify compliance with test parameters.

B. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 2 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.

2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

3. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.

2. Test results that comply with requirements.

3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 26 05 19

SECTION 26 05 29
SUPPORTING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes secure support from the building structure for electrical items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.

C. Related sections include the following:

1. Refer to other Division 26 sections for additional specific support requirements that may be applicable to specific items.

2. Section 26 05 00 “Common Work Results for Electrical”.

1.3 SUBMITTALS

A. Refer to DDC General Conditions Section 013300 "Submittal Procedures.

B. Product data for each type of product specified.

1.4 QUALITY ASSURANCE

A. Electrical Component Standard: Components and installation comply with NFPA 70, as amended by NYC Building Codes and FDNY Bulletins.

B. Electrical components are listed and labeled by UL, ETL, CSA, or other approved, nationally recognized testing and listing agency that provides third-party certification follow-up services.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. Slotted Metal Angle and U-Channel Systems:

    a. B-Line Systems, Inc.

    b. Haydon Corp.

    c. Kin-Line, Inc.

    d. Unistrut Diversified Products

    e. or Approved Equal.

2. Conduit Sealing Bushings:

    a. Cooper Industries, Inc.

    b. L.E. Mason Co.

    c. O-Z/Gedney

    d. Raco, Inc.

    e. Spring City Electrical Mgf. Co.

    f. Thomas & Betts Corp.

    g. or Approved Equal.

2.2 COATINGS

A. Coating: Supports, support hardware, and fasteners are protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors are hot-dip galvanized.

2.3 MANUFACTURED SUPPORTING DEVICES

A. Raceway Supports: Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.

1. Fasteners: Types, materials, and construction features as follows:

2. Expansion Anchors: Carbon steel wedge or sleeve type.

3. Toggle Bolts: All steel springhead type.

B. Powder-Driven Threaded Studs: Heat-treated steel, designed specifically for the intended service.

C. Conduit Sealing Bushings: Factory-fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

D. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Provide plugs with number and size of conductor gripping holes as required to suit individual risers. Construct body of malleable-iron casting with hot-dip galvanized finish.

E. U-Channel Systems: 16-gauge steel channels, with 9/16-inch (14 mm) diameter holes, at a minimum of 8 inches (20 cm) on center, in top surface. Provide fittings and accessories that mate and match with U-channel and are of the same manufacture.

2.4 FABRICATED SUPPORTING DEVICES

A. General: Shop- or field-fabricated supports or manufactured supports assembled from U-channel components.

B. Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.

C. Pipe Sleeves: Provide pipe sleeves of one of the following:

1. Sheet Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate sleeves from the following gauge metal for sleeve diameter noted:

a. 3 inch (8 cm) and smaller: 20-gauge.

b. 4 inch (10 cm) to 6-inch (15 cm): 16-gauge.

c. over 6-inch (15 cm): 14-gauge.

2. Steel Pipe: Fabricate from Schedule 40 galvanized steel pipe.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install supporting devices to fasten electrical components securely and permanently in accordance with Electrical Code requirements.

B. Coordinate with the building structural system and with other electrical installation.

C. Raceway Supports: Comply with NFPA 70, as amended by NYC Building Codes and FDNY Bulletins, and the following requirements:

1. Conform to manufacturer's recommendations for selection and installation of supports.

2. Strength of each support is adequate to carry present and future load multiplied by a safety factor of at least four. Where this determination results in a safety allowance of less than 200 lbs (90 kg), provide additional strength until there is a minimum of 200 lbs (90 kg) safety allowance in the strength of each support.

3. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.

4. Support parallel runs of horizontal raceways together on trapeze-type hangers.

5. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1-1/2-inch (DN 41) and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4 inch (6 mm) diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.

6. Support exposed and concealed raceway within 1 foot (30 cm) of an unsupported box and access fittings. In horizontal runs, support at the box and access fittings may be omitted where box or access fittings are independently supported and raceway terminals are not made with chase nipples or threadless box connectors.

7. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on conductor terminals.

D. Vertical Conductor Supports: Install simultaneously with installation of conductors.

E. Miscellaneous Supports: Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, disconnects, control enclosures, pull boxes, junction boxes, and other devices.

F. In open overhead spaces, cast boxes threaded to raceways need not be supported separately except where used for fixture support; support sheet metal boxes directly from the building structure or by bar hangers. Where bar hangers are used, attach the bar to raceways on opposite sides of the box and support the raceway with an approved type of fastener not more than 24 inches (60 cm) from the box.

G. Sleeves: Install in concrete slabs and walls and all other fire- rated floors and walls for raceways and cable installations. For sleeves through fire rated-wall or floor construction, apply UL- listed firestopping sealant in gaps between sleeves and enclosed conduits and cables in accordance with "Firestopping" requirement of Division 26 Section 260500 "Common Work Results for Electrical."

H. Fastening: Unless otherwise indicated, fasten electrical items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cabinets, panelboards, boxes, disconnect switches, and control components in accordance with the following:

1. Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts on concrete or solid masonry, and machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.

2. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration- and shock- resistant fasteners for attachments to concrete slabs.

I. In general, walls and partitions are not suitable for supporting the weight of panelboards, dry type transformers and the like. Include supporting frames or racks extending from floor slab to ceiling slab for all such items unless specifically instructed otherwise by the Commissioner.

J. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a free standing position.

K. No work intended for exposed installation in damp locations is mounted directly on any building surface. In such locations, flat bar members or spacers are used to create a minimum of 1/4 inch (6 mm) air space between the building surfaces and the work.

L. Nothing (including outlet, pull and junction boxes and fittings) depends on electric conduits, raceways or cables for support except that threaded hub type fittings having a gross volume not in excess of 100 cubic inches (1600 cc) may be supported from heavy wall conduit, where the conduit in turn is securely supported from the structure within 5 inches (12 cm) of the fitting on two opposite sides.

M. Nothing rests on, or depends for support on, suspended ceiling media (tiles, lath, plaster, as well as splines, runners, bars and the like in the plane of the ceiling). Vertical members which suspend the ceiling (together with their horizontal bracing which occurs above the ceiling), however, may be used for support, subject to the following criteria:

1. Supporting procedures are in accordance with the ceiling system manufacturer’s instructions.

2. Supporting members for circuitry are rigid. Wires may not be used for such supports.

3. The ceiling is not fire rated.

N. In conjunction with lighting fixtures or other items weighing less than 40 pounds (18 kg), the above restriction against supporting from suspended ceiling splines, runners or bars in the plane of the ceiling may be waived for ceilings which have been specifically approved for the weight and arrangement of fixtures being applied. Any support members, mechanical fastening means (i.e., bolts, screws or rivets), or other appurtenances, however, required to tie in or adapt to the fixtures and their ceiling opening frames (if any) to the ceiling in the approved manner are included as part of the electric work.

O. As a minimum procedure, support surface or pendant mounted lighting fixture:-

1. From its outlet box by means of an interposed metal strap, where weight is less than 5 pounds (2 kg).

2. From its outlet box by means of a hickey or other direct threaded connection, where weight is from 5 pounds (2 kg) to 50 pounds (20 kg).

3. Directly from structural slab, deck or framing member, where weight exceeds 50 pounds (20 kg).

P. As a minimum procedure, support recessed lighting fixtures as follows:

1. From ceiling suspension members, as described above, where weight is 80 pounds (35 kg) or less. Fluorescent fixtures are provided with clips to secure the fixtures to the ceiling members at two opposite ends of each fixture.

2. Directly from structural slabs, decks or framing members where weight is more than 80 pounds (35 kg).

END OF SECTION 26 05 29

SECTION 26 05 33
RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

C. Related sections include the following:

1. Division 26 Section 260500 “Common Work Results for Electrical”.

2. Division 26 Section 260529 “Supporting Devices” for raceway and box supports.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. FMC: Flexible metal conduit.

C. IMC: Intermediate metal conduit.

D. LFMC: Liquidtight flexible metallic conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC DOB and FDNY, and marked for intended use.

B. Comply with NFPA 70, as amended by NYC Building Codes and FDNY Bulletins.

1.6 COORDINATION

A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system and partition assemblies.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING:

A. Manufacturers

1. Alflex Corp
2. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
3. LTV Steel Tubular Products Company.
4. Wheatland Tube Co.
5. Triangle PWC, Inc.
6. or Approved Equal.

B. IMC: ANSI C80.6.

C. EMT and Fittings: ANSI C80.3.

1. Fittings: Set-screw or compression.

D. FMC: Zinc coated steel.

E. LFMC: Flexible steel conduit with PVC jacket.

F. Fittings: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Fittings for EMT: Die-cast compression type.

2.2 BOXES, ENCLOSURES AND CABINETS

A. Manufacturers:

1. Cooper Crouse-Hinds; Div. Of Cooper Industries, Inc.
2. Emerson/General Signal; Appleton Electric Company.

3. Hubbell, Inc.; Killark Electric Manufacturing Co.

4. O-Z/Gedney; Unit of General Signal.

5. RACO; Division of Hubbell, Inc.

6. Thomas & Betts Corporation.

7. or Approved Equal.

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

2.3 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Use the following wiring methods:

1. IMC for all purposes and in all applications except where specifically excluded, or where alternate methods are specified below.

2. Utilize EMT for:

a. Branch feeders.

b. Lighting and appliance branch circuitry.

3. Wiring methods listed above shall be restricted as follows:

a. Exclude EMT from concrete embedment, from locations where subject to mechanical damage and from exposed locations in finished spaces.

b. Exclude surface metal raceway from concealed installations, from locations where subject to mechanical damage and from wet or damp locations.

c. Exclude armored cable from exposed locations and from runs opening into wet or damp locations.

d. Utilize only intermediate or rigid steel conduit from runs in (or opening into) hazardous areas. Comply with electric code requirements regarding sealing fittings, boxes, enclosures as appropriate for the conditions of atmospheric contamination.

4. The following shall be treated as damp or wet locations within building confines, regardless of whether or not a high ambient moisture level is found to exist:

a. Spaces where any designations indicating weatherproof (WP) or vaporproof (VP) appear on the drawings.

b. Electric work in slabs, walls or suspended ceilings which bound on a space defined as a damp or wet location shall meet the damp or wet location requirements if it enters into, or opens into the damp or wet location in any way.

B. Minimum Raceway Size: 3/4 inch trade size.

C. Indicated Raceway Size: Raceway sizes indicated are based on non-flexible conduit. Where flexible type raceways are specified, increase raceway size as required to maintain code mandated maximum conduit fill.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

A. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot water pipes. Install horizontal raceway runs above water.

B. Complete raceway installation before starting conductor installation.

C. Support raceway as specified in Division 26 Section 260529 "Supporting Devices."

D. Install temporary closures to prevent foreign matter from entering raceway.

E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.

F. Make bends and offsets so the inside diameter is not reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.

H. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much possible.

1. Run parallel or banked raceways together on common supports.

2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

I. Join raceways with fittings designed and approved for the purpose and make joints tight.

1. Use insulating bushings to protect conductors.

J. Tighten set screws of threadless fittings with suitable tool.

K. Equip all raceways, including those embedded in concrete which cross building expansion or control joints, with expansion fittings having flexible grounding bonds bypassing sliding parts. Arrange expansion fittings on concrete embedded raceways so that sliding action is not impeded.

L. Terminations:

1. Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely, and install the locknuts with dished part against the box. Use two locknuts, one inside and one outside box.

2. Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.

M. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

N. Flexible Connections: Use maximum of 6 feet (1.8 m) of FMC for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in wet or damp locations. Install separate ground conductor across flexible connections.

O. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.

P. Install hinged cover enclosures and cabinets plumb. Support at each corner.

3.3 LOCATING AND ROUTING CIRCUITRY:

A. All circuitry shall be run concealed except that it shall be run exposed:

1. Horizontally at the ceiling of permanently unfinished spaces which are not assigned to mechanical or electrical equipment.

2. Horizontally and vertically in mechanical equipment spaces.

3. Horizontally and vertically in electric equipment rooms.

B. Concealed circuitry shall be so located that building construction materials can be applied over its thickest elements without being subject to spalling or cracking.

3.4 INSTALLING JUNCTION, PULL AND OUTLET BOXES:

A. Apply junction and pull boxes in accordance with the following:-

1. Include pull boxes in long straight runs of raceway to assure that cables are not damaged when they are pulled in.

2. Include junction and pull boxes to assure a neat and workmanlike installation of raceways.

3. Include junction and pull boxes to fulfill requirements pertaining to the limitations to the number of bends permitted in raceway between cable access points, the accessibility of cable joints and splices, and the application of cable supports.

4. Where the wires and cables following the same routing are indicated as running through separate pull boxes, it shall be understood that a segregation of the wires and cables is required. Separately indicated pull boxes may be incorporated into single boxes on condition that segregation is maintained by barriers of the type hereinafter specified.

5. Include all required junction and pull boxes regardless of indications on the drawings (which, due to symbolic methods of notation, may omit to show some of them).

B. Apply outlet boxes in accordance with the following:-

1. Unless noted below or otherwise specifically indicated, include a separate outlet box for each individual wiring device, lighting fixture and signal or communication system outlet component. Outlet boxes supplied attached to lighting fixtures shall not be used as replacements for the boxes specified herein unless they are specifically rated to accept "through circuit" building wires.

2. A continuous row of fixtures of the end-to-end channel type, designed for "through wiring," and wired in accordance with the specifications hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.

3. A series of separate fixtures, designed for "through wiring," spaced not more than 2 feet (600mm) apart, and interconnected with conduit or raceway and circuitry which is in accordance with the specifications hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.

4. Connection to recessed ceiling fixtures supplied with pigtails may be arranged so that more than one, but not more than four, such fixtures are connected into a single outlet box. When adopting this procedure:-

   a. Utilize an outlet box no smaller than 4-11/16 inches (119mm) square by 2-1/8 inches (54 mm) deep.

   b. Allow no fixture to be supplied from an outlet box in another room.

5. Multiple local switches indicated at a single location shall be gang mounted in a single outlet box.

6. Include all required outlet boxes regardless of indications on the drawings (which due to symbolic methods of notation, may omit to show some of them).

7. Regardless of any indications on the drawings, flush wall mounted outlet boxes shall not be set back-to-back in fire rated walls or partitions, even if they are displaced vertically. Such outlets shall be offset horizontally by 24 inches (610mm) or as otherwise required to maintain the fire rating.

8. Exclude "through-the-wall" collar type outlet boxes for flush devices indicated back-to-back in non-fire rated partitions or walls. Where necessary to accommodate box depths, outlets shown back-to-back shall be horizontally offset.

C. Install junction boxes, pull boxes and outlet boxes in accordance with the following:-

1. Exclude surface mounted outlet boxes in conjunction with concealed circuitry.

2. Exclude unused circuitry openings in junction and pull boxes. In larger boxes each such opening shall be closed with a galvanized sheet steel plate fastened with a continuous weld all around. In small outlet type boxes, utilize plugs as specified for such boxes.

3. Close up all unused circuitry openings in outlet boxes. Unused openings in cast boxes shall be closed with approved cast metal threaded plugs. Unused openings in sheet metal boxes shall be closed with sheet metal knock-out plugs.

4. Pack "through the wall" collar type outlet boxes with a sound deadening, non-hardening, non-hygroscopic, non- combustible, high dielectric stuffing material manufactured specifically for the purpose.

5. Outlet boxes for switches shall be located at the strike side of doors. Indicated door swings are subject to field change. Outlet boxes shall be located on the basis of final door swing arrangements.

6. Boxes and plaster covers for duplex receptacles shall be arranged for vertical mounting of the receptacle.

7. Equip outlet boxes used for devices which are connected to wires of systems supplied by more than one set of voltage characteristics with barriers to separate the different systems.

3.5 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that coatings, finishes, and cabinets are without damage or deterioration at Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

2. Repair damage to paint finishes with matching touch-up coating recommended by the manufacturer.

3.6 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION 26 05 33

SECTION 26 05 44
SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Section 07 84 13 "Firestops and Smokeseals" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

D. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.

2. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and with no side larger than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).

b. For sleeve cross-section rectangle perimeter 50 inches (1270 mm) or more and one or more sides larger than 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Advance Products & Systems, Inc.

b. CALPICO, Inc.

c. Pipeline Seal and Insulator, Inc.

d. or Approved Equal.

2. Sealing Elements: EPDM or Nitrile (Buna N) rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

3. Pressure Plates: Stainless steel.

4. Connecting Bolts and Nuts: Stainless Steel of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Presealed Systems.

b. Roxtec.

c. CALPICO, Inc.

d. Approved equal.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.

b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

3. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.

4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level. Install sleeves during erection of floors.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.

2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 26 05 44

SECTION 26 05 53
ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes electrical identification materials and devices required to comply with ANSI C2, NFPA 70 - as amended by NY State and NYC codes, OSHA standards, and the requirements of the NYC DOB and FDNY.

C. Related Section: The following Sections contain requirements that relate to this Section:

1. Section 26 05 00 “Common Work Results for Electrical”.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Schedule of Nomenclature: An index of electrical equipment and system components used in identification signs and labels.

C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70, as amended by NY State and NYC codes.

B. Comply with ANSI A13.1 and NFPA 70 for color-coding.

C. Comply with ANSI Z535-2, Z535-4, and NFPA 70E.

D. Comply with ANSI C2.

E. Comply with 29 CFR 1910.145

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 RACEWAY AND CABLE LABELS

A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

1. Color: Black letters on orange field.

2. Legend: Indicates voltage and service.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

D. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches (50 mm) long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches (50 mm) wide; compounded for outdoor use.

2.2 CONDUCTOR AND COMMUNICATION AND CONTROL-CABLE IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.

B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

C. Aluminum Wraparound Marker Labels: Cut from 0.014-inch- (0.35-mm-) thick aluminum sheet, with stamped, or embossed legend, and fitted with tabs and matching slots for permanently securing around wire or cable jacket or around groups of conductors.

D. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking nylon tie fastener.

E. Write-On Tags: Polyester tag, 0.015 inch (0.38 mm) thick, with corrosion-resistant grommet and polyester or nylon tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.

2.3 WARNING LABELS, NAMEPLATES AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Engraved Plastic Warning Labels, Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. in. (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.

1. Engraved legend with black letters on white face.

2. Punched or drilled for mechanical fasteners.

C. Baked-Enamel Warning Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch (6.4-mm) grommets in corners for mounting. Nominal size, 7 by 10 inches (180 by 250 mm).

D. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.

1. Minimum Width: 3/16 inch (5 mm).

2. Tensile Strength: 50 lb (22.3 kg) minimum.

3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).

4. Color: Black, except where used for color-coding.

B. Paint: Formulated for the type of surface and intended use.

1. Primer for Galvanized Metal: Single-component acrylic vehicle formulated for galvanized surfaces.

PART 3 - EXECUTION

3.1 APPLICATION

A. Accessible Raceways and Cables of Auxiliary Systems: Identify the following systems with color-coded, self-adhesive vinyl tape applied in bands or with snap-around, color-coding bands:

B. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use aluminum wraparound marker labels. Identify each ungrounded conductor according to source and circuit number.

C. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, signal, sound, intercommunications, voice, and data connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.

2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual.

D. Warning Labels for Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply warning signs. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.

1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:

a. Controls with external control power connections.

2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

3. Equipment Control Panels, Meter Socket Enclosures, and Motor Control Centers: Labeled to warn of potential electric arc flash hazards. The label shall be located so as to be clearly visible before examination, adjustment, servicing, or maintenance of the equipment.

E. Instruction Signs:

1. Operating Instructions: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

F. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, control panels, control stations of each system. Systems include power, lighting and control systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where 2 lines of text are required, use labels 2 inches (50 mm) high.

b. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

2. Equipment to Be Labeled:

a. Disconnect switches.

b. Motor starters.

c. Push-button stations.

d. Contactors.

3.2 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Attach signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.

E. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

F. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.

1. Color shall be factory applied the entire length of conductors, except the following field-applied color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:

a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch- (25-mm-) wide tape in colors specified. Locate tape bands to avoid obscuring cable identification markings.

b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches (76 mm) from the terminal and spaced 3 inches (76 mm) apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length. Locate bands to avoid obscuring cable identification markings.

2. Colors for 208/120-V Circuits:

a. Phase A: Black.

b. Phase B: Red.

c. Phase C: Blue.

G. Painted Identification: Install painted identification according to manufacturer's written instructions and as follows:

1. Clean surfaces of dust, loose material, and oily films before painting.

2. Prime surfaces using type of primer specified for surface.

END OF SECTION 26 05 53

SECTION 26 08 00
COMMISSIONING OF ELECTRICAL

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 commissioning process requirements for Electrical systems, assemblies, and equipment.

B. Related Sections:

1. Refer to DDC General Conditions for commissioning process requirements.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City of New York with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of the Contractor to provide a complete design or installing Sub-Contractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City of New York.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing Sub-Contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Maintenance documentation is complete and transferred to City of New York.
4. Verify that proper orientation program has been implemented for the City of New York service personnel.
5. Ensure that provisions are in place for a post occupancy review within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the Commissioner and Contractor. The Contractor shall ensure the participation of the Sub-Contractors, manufacturers and equipment suppliers as required.

E. The Cx process shall not reduce the responsibility of the Contractor to comply with the Contract Documents.

1.4 DEFINITIONS

A. Refer to DDC General Conditions for definitions.

1.5 SUBMITTALS

A. Refer to DDC General Conditions for CxA's role.

B. Refer to DDC General Conditions for specific submittal requirements. In addition, provide the following:

1. Certificates of readiness
2. Certificates of completion of installation, prestart, and startup activities.
3. O&M manuals
4. Field / factory Test reports

1.6 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: The Contractor will comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

1.7 COORDINATION

A. Refer to DDC General Conditions for requirements pertaining to coordination during the commissioning process.

PART II - PRODUCTS

2.1 TEST EQUIPMENT

A. The Contractor shall ensure that the equipment and system perform startup, initial checkout and functional performance testing as outlined in the DDC General Conditions. For example, the Contractor shall ultimately be responsible for all standard testing equipment for the electrical systems and control systems in Division 26. A sufficient quantity of two-way radios shall be provided by the Contractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included and left on site at no additional cost to the City of New York, except for stand-alone data logging equipment that may be used by the CxA.

C. 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. The Contractor shall ensure that the manufacturer provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Test equipment (and software) shall become the property of the City of New York upon completion of the commissioning process.

D. If required and necessary, data logging equipment and software required for testing will be provided by the CxA, but shall not become the property of the City of New York.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications.

PART III - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the Contractor, the CxA will prepare Pre-Functional/ Installation Checklists for commissioned components, equipment, and systems.

B. Red-lined Drawings:

1. The Contractor shall cause the Sub-Contractor(s) to verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.
2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.
3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.
4. The Contractor will create the as-built drawings.

C. Operation and Maintenance Data:

1. The Contractor shall cause the Sub-Contractor to provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements.
3. The CxA will receive a copy of the final approved O&M literature once corrections have been made by the Contractor.

D. Demonstration and Instruction:

1. The Contractor shall cause the Sub-Contractor to provide demonstration and operator's instruction as required by the contract documents.
2. A complete instruction plan and schedule must be submitted by the Contractor to the CxA four weeks (4) prior to any such event.
3. Agenda for each instruction session shall be submitted to the CxA at least one (1) week prior to the session.

4. The CxA shall be notified at least seventy-two (72) hours in advance of scheduled tests so that testing may be observed by the CxA. A copy of the test record shall be provided to the CxA and Commissioner.
5. Engage a Factory-authorized service representative to demonstrate City of New York service personnel to adjust, operate, and maintain specific equipment.
6. Instruct City of New York service personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review and update data in O&M Manuals.

3.2 CONTRACTOR RESPONSIBILITIES FOR SUB-CONTRACTOR PERFORMANCE

A. The Contractor shall cause the specified Sub-Contractor to have the following instruction responsibilities in performing electrical System work: The commissioning responsibilities are as follows (all references apply to commissioned system and equipment only):

1. Perform commissioning tests as per the written procedures and at the direction of the CxA
2. Attend construction phase controls coordination meetings.
3. Participate in Electrical systems, assemblies, equipment, and component maintenance orientation and inspection as directed by the CxA.
4. Provide information requested by the CxA for final commissioning documentation.
5. Include requirements for submittal data, operation and maintenance data, and instruction in each purchase order or sub-contract written.
6. Prepare preliminary schedule for Electrical system orientations and inspections, operation and maintenance manual submissions, instruction sessions, equipment start-up and task completion for the Commissioner. Distribute preliminary schedule to commissioning team members.
7. Update schedule as required throughout the construction period.
8. During the startup and initial checkout process, execute the related portions of the prefunctional checklists for all commissioned equipment.
9. Perform all verification and functional performance tests in the presence of the CxA as required.
10. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.
11. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA forty five (45) days after submittal acceptance.
12. Coordinate with the CxA to provide seventy-two (72) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.
13. Notify the CxA a minimum of (2) weeks in advance for start of the testing work.
14. Participate in, and schedule vendors and respective Sub-Contractors to participate in the operator’s orientation sessions.

15. Provide written notification to the CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.
    a. Electrical equipment including switchgear, panel boards, motor control centers, lighting, receptacles, and all other equipment furnished under this Division.
    b. Fire alarm system
    c. Lighting System
16. The Contractor shall ensure that the equipment suppliers documents the performance of their equipment.
17. The Contractor shall ensure equipment Suppliers perform the following tasks:
    a. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City of New York, to keep warranties in force.
    b. Assist in equipment testing per agreements.
    c. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.
18. The Contractor shall attend the 10-month warranty walkthrough with the facility representative and the CxA.
19. Provide instruction of the City of New York service personnel using qualified personnel, as specified.
20. Refer to DDC General Conditions for additional responsibilities.

3.3 CxA's RESPONSIBILITIES

A. Refer to DDC General Conditions for CxA's Responsibilities.

3.4 TESTING PREPARATION

A. Certify in writing to the CxA that Electrical systems, subsystems, and equipment have been installed, meggered, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Electrical instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that testing procedures have been completed and that testing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.5 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Electrical testing shall include the entire Electrical installation, from the incoming power equipment throughout the distribution system. Testing shall include measuring, but not limited to resistance, voltage, and amperage of system(s) and devices.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The Contractor shall prepare detailed testing plans, procedures, and checklists for Electrical systems, subsystems, and equipment with guidance from CxA. The Contractor shall ensure input from any necessary Sub-Contractors, including the Sub-Contractor performing fire alarm work.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct that set points be altered when simulating conditions is not practical.

H. If tests cannot be completed because of a deficiency outside the scope of the Electrical system, document the deficiency and report it to the Commissioner. After deficiencies are resolved, reschedule tests.

I. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.6 ELECTRICAL SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing requirements are specified in Division 26. Provide submittals, test data, inspector record, infrared camera and certifications to the CxA.

B. Electrical Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in Division 26. Assist the CxA with preparation of testing plans.

C. Fire Detection and Alarm System Testing: The Contractor shall provide technicians, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested.

D. Electrical Distribution System Testing: The Contractor shall provide technicians, load banks, infrared cameras, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested

E. Variable Frequency Drive System Testing: The Contractor to prepare a variable frequency drive system testing plan to include tuning to minimize vibration. The Contractor to coordinate witnessing of testing with CxA.

F. Vibration and Sound Tests: The Contractor shall provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

G. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and sub-systems. The scope of commissioning work shall include but not limited to the following equipment and systems:

1. Electrical Main Switchboards and Transformers
2. Electrical Distribution panels.
3. Lighting and Lighting Controls
4. Fire Alarm Systems

3.7 SEASONAL TESTING

A. Refer to DDC General Conditions for requirements pertaining to seasonal testing.

3.8 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements.

B. Refer the DDC General Conditions for the requirements for the Contractor and CxA roles in the Operation and Maintenance Manual contribution, review, and approval process.

3.9 INSTRUCTION OF FACILTY PERSONNEL

A. Refer to DDC General Conditions for requirements pertaining to instruction.

B. The Contractor shall have the following instruction responsibilities:

1. Provide the CxA with an instruction plan four weeks before the planned instruction.
2. Provide the City of New York service personnel with comprehensive instruction in the understanding of the systems and the operation and maintenance of each major piece of commissioned electrical equipment or system.
3. Instruction shall be recorded by the CxA and start with classroom sessions, if necessary, followed by hands on instruction on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
5. The Contractor shall ensure that the appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing Sub-Contractor or manufacturer’s representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the instruction.

6. The instruction sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference. Instruction shall include but not limited to:
   a. Use the printed installation, operation and maintenance instruction material included in the O&M manuals.
   b. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The instruction shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
   c. Discuss relevant health and safety issues and concerns.
   d. Discuss warranties and guarantees.
   e. Cover common troubleshooting problems and solutions.
   f. Explain information included in the O&M manuals and the location of all plans and manuals in the facility.
   g. Discuss any peculiarities of equipment installation or operation.
7. Hands-on instruction shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance of all pieces of equipment.
8. The Contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
9. Instruction shall occur after functional testing is complete, unless approved otherwise by the Commissioner.

END OF SECTION 26 08 00

SECTION 26 08 01
ELECTRICAL TESTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes general requirements for electrical field testing and inspecting. Detailed requirements are specified in each Section containing components that require testing. General requirements include the following:

1. Coordination requirements for testing and inspecting

2. Reporting requirements for testing and inspecting.

C. Related Section: The following Sections contain requirements that relate to this Section:

1. Section 26 05 00 “Common Work Results for Electrical”.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 GENERAL TESTS AND INSPECTIONS

A. Where no specific requirements are given, provide testing in accordance with the latest version of the InterNational Testing Association (NETA) Acceptance Testing Specification for Electric Power Distribution Equipment and Systems.

B. Where tests are specified to be performed by an independent testing agency, prepare systems, equipment, and components for tests and inspections, and perform preliminary tests to ensure that systems, equipment, and components are ready for independent agency testing. Include the following minimum preparations as appropriate:

1. Perform insulation-resistance tests for all branch circuit affected.

2. Perform continuity tests.

3. Perform rotation test (for motors being replaced).

4. Provide a stable source of single-phase, 208/120-V electrical power for test instrumentation at each test location.

5. Lighting control and foot candle measurement.

C. Test and Inspection Reports: In addition to requirements specified elsewhere, report the following:

1. Manufacturer's written testing and inspecting instructions.

2. Calibration and adjustment settings of adjustable and interchangeable devices involved in tests.

3. Tabulation of expected measurement results made before measurements.

4. Tabulation of "as-found" and "as-left" measurement and observation results.

END OF SECTION 26 08 01

SECTION 26 20 01

FEEDERS AND BRANCH CIRCUITRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SECTION INCLUDES

A. This section includes the following basic electrical materials and methods to complement other Division 26 Sections.

B. This Section includes basic requirements for the installation of light and power feeders and circuitry run at less than 600 volts.

C. Related Sections: The following sections contain requirements that relate to this Section:

1. Section 260533 "Raceways and Boxes."

2. Section 260519 "Conductors and Cables."

3. Section 26 05 00 “Common Work Results for Electrical Work”.

1.3 SUBMITTALS

A. Refer to DDC General Conditions Section 013300 "Submittal Procedures.

B. Circuited up "as-built" drawings and panel directories as called for in the related Division 26 sections.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70, as amended by NY State and NYC codes.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 INSTALLATION OF FEEDERS

A. Feeder connections shall be in the phase rotation which establishes proper operation for all equipment supplied.

B. Existing branch circuit wiring shall be reused, prior to reconnection to coil feeder shall be traced out, check for continuity.

C. Each circuit shall be identified and protected for re-use.

D. Where fixture are being replaced, remote branch circuit from fixture to nearest junction box, or fixture, replace fixture and extend the existing branch circuit wiring to new fixture.

3.2 INSTALLATION OF LIGHTING AND APPLIANCE BRANCH CIRCUITRY

A. Circuitry indicated without sizing shall be understood to be lighting and appliance branch circuitry protected at 20 amps or less.

B. Conform all lighting and appliance branch circuitry (regardless of whether protected above or below 20 amps) to the following:

1. Except as noted below, circuitry shall be multi-wire utilizing common neutrals arranged so that no neutral conductor acts as a common wire for more than one circuit conductor connected to the same phase leg of the supply system.

2. Branch circuitry supplying relay controlled lighting fixtures shall be understood to include all necessary interconnections between the control panels containing the relays and the associated lighting or appliance panels.

3. Under no condition shall any local switch break a neutral conductor.

4. At any location where lighting and appliance branch circuitry is extended from a flush mounted panelboard to a suspended ceiling immediately above, at least four 1-inch empty conduits shall be included (in addition to those required for active circuitry) to permit future wiring escape from the panelboard. The empty conduits shall extend up from the panel and shall terminate in a threaded conduit cap immediately after turning out into the hung ceiling space.

5. Raceway sizes shall conform to standard maximum permissible occupancy requirements except where these are exceeded by other requirements specified elsewhere.

C. Conform lighting and appliance branch circuitry, indicated as being protected at 20 amps or less, to the following:

1. 120 volt circuitry shall be supplied from 20 amp panel branches except as indicated, and as noted below:

    a. Minimum conductor size shall be #12 AWG.

D. Where circuitry has not been delineated for lighting fixtures, switches and miscellaneous items intended for protection at 20 amps, such items shall be provided with circuitry conforming to the requirements listed below. Prior to installation of circuitry, submit for review floor plans showing circuit numbers, home runs, and interconnecting circuitry for all such items.

1. When circuiting up recessed ceiling lighting fixtures, connect fixtures on the basis of more than one fixture to a single outlet box, in an approved manner, as required to ensure that circuits will not be unnecessarily lightly loaded due to mandated, restrictions on the maximum number of outlets per circuit. Except with special permission, unnecessarily light loading shall be understood to mean, less than 1000 volt amps (VA) on a 120 volt circuit.

2. The total load on a circuit shall be computed by ascribing volt-amps to individual items on the basis of the following:

    a.

ITEM	VOLT-AMPS (VA)
Any lighting fixture.	Input volt-amps as per lighting fixture schedule.

3. Not more than 1300 total VA shall be applied to any 15 amp, 120 volt panel branch circuit not more than 1450 VA to any 20 amp, 120 volt branch circuit.

4. Lighting fixture shall be connected to 20 amp panel branch circuits. Solidly connected equipment less than 1300 VA shall be connected to 15 amp panel branch circuits except as indicated or noted herein.

5. Any installed lighting and appliance branch circuitry, found (as a result of unnecessarily light loading of conductors) to make excessive use of panel branches, shall be rearranged.

6. Circuits shall be balanced on phases at their supply point as evenly as possible.

7. The final arrangement of lighting and appliance branch circuitry shall be fully delineated on the record, or "as-built" drawings called for elsewhere.

END OF SECTION 26 20 01

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SECTION 26 28 02
SELECTION OF OVERCURRENT DEVICES (UNIV-SWF)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section includes all overcurrent protective devices (OCPDs) (OCDs) required for the project. It defines the type of OCPD required for each individually mounted device, panelboard, and miscellaneous device required.

B. Related Sections:

1. Division 26, Section 262813 "Fuses."

1.3 ACTION SUBMITTALS

A. Shop Drawings:

1. Descriptive data defining how the required short circuit ratings will be met by the equipment furnished under the Related Sections described above. Include UL approval data from manufacturers for "series rated" combinations.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 70, as amended by NY State and NYC codes.

B. Listing and Labeling: Products - as described with the Related Sections above - shall be Underwriters Laboratories listed and labeled as defined in NFPA 70 Article 100. Where "series ratings" have been specified, listings attesting to these ratings shall be provided from UL or other nationally recognized testing laboratory.

PART 2 - PRODUCTS

2.1 GENERAL

A. Refer to Related Sections listed hereinbefore for general product requirements.

B. Short circuit current ratings, and the manufacturer's labels attesting to these ratings (based on UL listings), shall be required for overcurrent protection devices, where they are individually mounted (as fused switches), and for the equipment assemblies when they are incorporated in panels, etc. Such ratings shall be in accordance with the following:

1. In order to ensure that they are at least equal to the available fault current, minimum ratings have been specified herein for the individual overcurrent device types, and in the pertinent sections for panelboards, and other assemblies or devices. Where "series connected ratings" have been specified for circuit breaker type panelboards, these minimum ratings are in general based on the use of upstream fuses that have been specifically tested with the circuit breakers, and have been UL listed accordingly.

2. Where such fuse-circuit breaker series ratings are not available from a particular manufacturer, a current limiting circuit breaker may be utilized as the upstream device in order to obtain the required series rating. Such current limiting breakers shall be incorporated as main devices in the panelboards, as part of upstream panelboards, metering assemblies, or as individually mounted devices, as the case may be. Where the required ratings can be met with main or upstream non-current limiting breakers having appropriate interrupting capacities, as approved by UL, such arrangements may also be considered acceptable.

2.2 APPLICATION

A. Overcurrent protective devices shall be provided in accordance with the schedule below. Abbreviations shall be understood to have the following meanings:

1. SW-QMQB: quick-make, quick-break switch.

2. /F: fusible (as part of switch abbreviation).

3. CB-SMC: standard molded case circuit breaker.

4. CB-CMC: compact molded case circuit breaker.

B. Select overcurrent protection devices as follows:

CATEGORY OF APPLICATION		DEVICE TYPE
Main unit in lighting or appliance panel		CB-SMC except CLCB-MC if needed for "series rating" of panel
Branch unit in lighting or appliance panel		CB-SMC

2.3 QUICK-MAKE, QUICK-BREAK SWITCHES

A. Select quick-make, quick-break type distribution switches in accordance with the following:

1. They shall equal or exceed the performance required for NEMA type H.D. horsepower rated switches.

2. They shall have arc quenchers and circuit breaker type pressure contacts.

3. Where intended for panelboard mounting, they shall be of the "bolted-in" type.

4. They shall be designed for use only with Class "J" fuses up to 600 amps, and "Class L" fuses above 600 amps, and incorporate factory installed clips designed to ensure the use of proper fuses. Coordinate to ensure that fuses supplied for the project match these fuse gaps.

2.4 STANDARD MOLDED CASE CIRCUIT BREAKERS

A. Standard molded case circuit breakers shall comply with the following:

1. They shall consist of manually operated quick-make, quick-break mechanically trip free operating mechanisms for simultaneous operation of all poles, with contacts, arc interrupters and trip elements for each pole, all enclosed in molded phenolic plastic cases.

2. Their tripping units shall be of the "thermal magnetic" type having bimetallic elements for time delay overload protection, and magnetic elements for short circuit protection.

3. Where no frame sizes are indicated their interrupting capacity (in RMS symmetrical amperes) shall be not less than 10,000 amperes for use in 120/208 volt lighting or appliance panels.

4. Where frame sizes are indicated their interrupting capacity (in RMS symmetrical amperes) shall not be less than 22,000 amperes for 100 amperes and 225 amperes frame circuit breakers, nor less than 42,000 amperes for larger frame sizes.

5. The minimum interrupting capacity in symmetrical RMS amperes of the circuit breakers intended for use in panelboards shall be as noted above. Where necessary in order to provide the UL approved "series connected" short circuit panel ratings specified elsewhere, breakers with higher interrupting capacities shall be provided as required.

6. They shall be of the "bolted-in" type.

7. Single pole breakers sized 20 amps or less shall be rated for switching duty.

8. Where utilized for circuits supplying HID lighting, they shall be HID rated.

9. They shall be multi-pole circuit breakers, or single-pole circuit breakers with handle ties where serving multi-wire branch circuits.

10. They shall be equipped with 5 milliamp sensitivity ground fault interrupting features where so indicated, and/or where they supply 120 volt, 15- and 20-ampere receptacles in bathrooms, kitchens, within 6 feet of sinks, and other such code mandated locations and with 30 milliamps sensitivity G.F.I. features where they supply piping tracing cables.

11. They shall include provisions for padlocking the device in the open position where serving loads that require such protection.

2.5 FUSES

A. Refer to Division 26, Section 262813 "Fuses" for additional requirements.

B. Select fuses in accordance with the following:

1. Regardless of the actual available fault current they shall, at full recovery voltage, be capable of safely interrupting fault currents of 200,000 amperes RMS symmetrical deliverable at the line side of the fuse.

2. They shall be suitable for application to fuse gaps that reject other types of fusing. Coordinate with supplier(s) of all fusible switch units (in panels, etc.) for the project to ensure that fuse gaps match the specified fuse types.

3. Except as noted hereinafter, in sizes up to 600 amps, they shall be of the Class "J" time delay type, capable of carrying 500 percent of rated current for not less than 10 seconds and UL listed as a "Class J" fuse. Fuses shall be Shawmutt Type "AJT", Bussmann Type "LPJ", Littlefuse "JTD" Series or approved equal. Approval is contingent on certified test data demonstrating full compliance with the following requirements:

   a. Fuse shall carry 500 percent of rating for at least 10 seconds.

   b. Fuse shall be suitable for motor feeders when applied at 150 percent of motor full load current.

   c. Fuse selectivity with downstream fuses shall be:

      1) 2:1 with "J" time delay.

      2) 3:1 with "RK-5" time delay.

      3) 2:1 with "RK-1" time delay.

4. Where intended for use in motor starters (individual, or in motor control centers) they shall be of the dual element time delay type, UL listed as "Class RK-5", and capable of carrying 500 percent of rating for at least 10 seconds. Utilize "Class RK-1" time delay fuses where required to ensure coordination with upstream fuses.

5. Except as noted hereinafter, in sizes over 600 amps, they shall be of the current limiting type, UL listed as "Class L".

6. Fuses to be used in current limiting circuit breakers, regardless of actual available fault current, at full recovery voltage, shall be capable of safely interrupting fault currents in the order of 200,000 amperes RMS symmetrical of 280,000 amperes RMS asymmetrical. The current limiting fuses shall coordinate with and back up the circuit breakers they are associated with so that all fault overload currents occurring within the safe capability of the breakers shall cause the breakers to open, and all currents occurring beyond the safe capability of the breakers shall cause the fuses to open; the opening of fuses being such as to prevent damage to any circuit breaker component parts. Where directed, fuses shall be reduced in size so as to provide backup protection for downstream overcurrent devices.

2.6 COMPACT MOLDED CASE CIRCUIT BREAKERS

A. Select compact molded case breakers in accordance with the following:

1. They shall consist of manually operated quick-make, quick-break mechanically trip free operating mechanisms for simultaneous operating of all poles, with contacts, and trip elements for each pole, all enclosed in molded phenolic plastic cases. Trip units for these breakers shall be of the "thermal magnetic" type having bimetallic elements for time delay overload protection and magnetic elements for short circuit protection.

2. They shall have an interrupting rating of at least 10,000 amperes RMS asymmetrical.

3. They shall be of a type capable of being used with main devices incorporated in the load center (panelette), or upstream devices, to establish the required series rated short circuit capability indicated elsewhere.

4. They may be of the plug in type but shall be arranged for tamper resistant mounting to prevent the interchange of breakers having trip sizes outside of prescribed ranges.

5. They shall be equipped with 5 milliamp ground fault interrupting features where so indicated or where required by code.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with the requirements of Division 26, Sections 262813 "Fuses," 262416 "Panelboards".

END OF SECTION 26 28 02

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SECTION 26 28 13
FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600-V ac and less for use in control circuits enclosed switches panelboards enclosed controllers.

2. Plug fuses rated 125-V ac and less for use in plug-fuse-type enclosed switches fuseholders and panelboards.

3. Spare-fuse cabinets.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material, dimensions, descriptions of individual components, and finishes for spare-fuse cabinets. Include the following for each fuse type indicated:

1. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals. In addition to items specified in General Conditions, include the following:

1. Ambient temperature adjustment information.

2. Current-limitation curves for fuses with current-limiting characteristics.

3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse.

4. Coordination charts and tables and related data.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70; including the NYC amendments to National Electrical Code.

E. Comply with UL 248-11 for plug fuses.

1.6 PROJECT CONDITIONS

A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C), apply manufacturer's ambient temperature adjustment factors to fuse ratings.

1.7 COORDINATION

A. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Bussmann, Inc.
2. Edison Fuse, Inc.
3. Ferraz Shawmut, Inc.
4. Littelfuse, Inc.
5. or Approved Equal.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

2.3 PLUG FUSES

A. Characteristics: UL 248-11, nonrenewable plug fuses; 125-V ac.

2.4 PLUG-FUSE ADAPTERS

A. Characteristics: Adapters for using Type S, rejection-base plug fuses in Edison-base fuseholders or sockets; ampere ratings matching fuse ratings; irremovable once installed.

2.5 SPARE-FUSE CABINET

A. Characteristics: Wall-mounted steel unit with full-length, recessed piano-hinged door and key-coded cam lock and pull.

1. Size: Adequate for storage of spare fuses specified with 15 percent spare capacity minimum.

2. Finish: Gray, baked enamel.

3. Identification: "SPARE FUSES" in 1-1/2-inch- (38-mm-) high letters on exterior of door.

4. Fuse Pullers: For each size of fuse, where applicable and available, from fuse manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.

B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.

C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.

D. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FUSE APPLICATIONS

A. Cartridge Fuses:

1. Feeders: Class L, fast acting Class L, time delay Class RK1, fast acting Class RK1, time delay Class RK5, fast acting Class RK5, time delay Class J, fast acting Class J, time delay.

2. Motor Branch Circuits: Class RK1 Class RK5, time delay.

3. Other Branch Circuits: Class RK1, time delay Class RK5, time delay Class J, fast acting Class J, time delay.

4. Control Circuits: Class CC, fast acting time delay.

B. Plug Fuses:

1. Motor Branch Circuits: Edison-base type, dual Edison-base type, single Type S, dual Type S, single-element time delay.

2. Other Branch Circuits: Edison-base type, single-element fast acting Edison-base type, dual-element time delay Edison-base type, single-element time delay Type S, dual-element time delay Type S, single-element time delay.

3.3 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Install plug-fuse adapters in Edison-base fuseholders and sockets. Ensure that adapters are irremovable once installed.

C. Install spare-fuse cabinet.

3.4 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems" and indicating fuse replacement information on inside door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 26 28 13

SECTION 26 28 16
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Fusible switches.

2. Enclosures.

1.3 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

1. Enclosure types and details for types other than NEMA 250, Type 1.

2. Current and voltage ratings.

3. Short-circuit current ratings (interrupting and withstand, as appropriate).

4. Include evidence of NRTL listing for series rating of installed devices.

5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to work by other trades.

1. Wiring Diagrams: For power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1. Test procedures used.

2. Test results that comply with requirements.

3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in General Conditions include the following:

1. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.

1.7 QUALITY ASSURANCE

A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single source from single manufacturer.

B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with NFPA 70 as amended by NYC DOB and FDNY.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Not less than minus 22 deg F (minus 30 deg C) and not exceeding 104 deg F (40 deg C).

B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Theater for the New City unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify the Commissioner no fewer than seven days in advance of proposed interruption of electric service.

2. Indicate method of providing temporary electric service.

3. Do not proceed with interruption of electric service without the Commissioner's written permission.

4. Comply with NFPA 70E.

1.9 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.

2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.

3. Siemens Energy & Automation, Inc.

4. Square D; a brand of Schneider Electric.

5. or Approved Equal.

B. Type HD, Heavy Duty, Single Throw, 800 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.

2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.

3. Isolated Ground Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.

4. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.

5. Auxiliary Contact Kit: Two NO/NC (Form "C") auxiliary contact(s), arranged to activate before switch blades open.

6. Hookstick Handle: Allows use of a hookstick to operate the handle.

7. Lugs: Suitable for number, size, and conductor material.

8. Service-Rated Switches: Labeled for use as service equipment.

2.2 ENCLOSURES

A. Enclosed Switches: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.

2. Outdoor Locations: NEMA 250, Type 3R.

3. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.

4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

5. Finish: Manufacturer's standard paint applied to factory-assembled and -tested enclosures before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install individual wall-mounted switches with tops at uniform height unless otherwise indicated.

B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

C. Install fuses in fusible devices.

D. Comply with NECA 1.

3.3 IDENTIFICATION

A. Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

2. Label each enclosure with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.4 CONNECTIONS

A. Install equipment grounding connections for switches with ground continuity to main electrical ground bus.

B. Install power wiring. Install wiring between switches and circuit breakers, and control and indication devices.

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.

2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

3. Perform the following infrared scan tests and inspections and prepare reports:

a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.

b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.

c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

4. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed switches will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.6 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as required by overcurrent protective device coordination study.

END OF SECTION 26 28 16

SECTION 28 31 00
FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Central equipment (also referred to as head end equipment) including Fire Alarm Control Panel.
2. Outlying annunciator.
3. Analog-addressable smoke (and smoke-heat) sensor/detectors.
4. Addressable manual fire alarm stations.
5. Addressable heat detectors.
6. Outlying addressable modules (monitoring or control) in addressable module boxes or cabinets.
7. Notification appliances.
8. System equipment control cabinets (also referred to as equipment control cabinets).
9. Interconnecting circuitry and control circuit extensions (i.e. final connections to controlled equipment and addressable module boxes.
10. Addressable interface devices.
11. Digital alarm communicator transmitter.
12. Addressable carbon monoxide detector

1.3 DEFINITIONS

A. FACP: Fire Alarm Control Panel.

B. LED: Light-emitting diode.

C. NICET: National Institute for Certification in Engineering Technologies.

1.4 SYSTEM DESCRIPTION

A. Noncoded addressable system, with automatic sensitivity control of certain smoke detectors and multiplexed signal transmission, dedicated to fire-alarm service only.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For fire-alarm system. Include plans, elevations, sections, details, and attachments to work by other trades.

1. Comply with recommendations in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72.

2. Include voltage drop calculations for notification appliance circuits.

3. Include battery-size calculations.

4. Include input/output matrix in accordance with the requirements of the FDNY.

5. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.

6. Include performance parameters and installation details for each detector, verifying that each detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.

7. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale and coordinating installation of duct smoke detectors and access to them. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators. Locate detectors according to manufacturer's written recommendations.

8. Include alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.

9. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits. Indicate the circuit to which all audio visual devices are connected and candela setting of all strobes.

10. Include list of materials and Underwriters Laboratories and Factory Mutual listing data.

11. Include power supply details and riser where applicable.

12. Make all filings with the NYC DOB, FDNY. Where filings require the Professional engineer's signature, documents are submitted for review and signature.

13. Contractor shall provide the Commissioner hard and soft copies of Fire Alarm System's software & programming database upon final approval of FDNY. The database provided shall be useable by any authorized distributor of the product line, and shall include all applicable passwords necessary for total and unrestricted use and modification of the database. The Commissioner shall retain complete Rights to all software running in the System.

C. General Submittal Requirements:

1. Submittals shall be approved by NYC DOB and FDNY prior to submitting them to Commissioner.

2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained by manufacturer in fire-alarm system design.

b. NICET-certified fire-alarm technician

c. Licensed or certified by NYC DOB and FDNY.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals. In addition to items specified in General Conditions, deliver copies to NYC DOB and FDNY and include the following:

1. Comply with the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

2. Provide "Record of Completion Documents" according to NFPA 72 article "Permanent Records" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter.

3. Record copy of site-specific software.

4. Provide "Maintenance, Inspection and Testing Records" according to NFPA 72 article of the same name and include the following:

a. Frequency of testing of installed components.

b. Frequency of inspection of installed components.

c. Requirements and recommendations related to results of maintenance.

d. Manufacturer's user manuals.

5. Manufacturer's required maintenance related to system warranty requirements for one year.

6. Abbreviated operating instructions for mounting at fire-alarm control unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.

2. Program Software Backup: On magnetic media or compact disk, complete with data files.

3. Device address list.

4. Printout of software application and graphic screens.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained by manufacturer for installation of units required for this Project. Installation shall be by personnel certified by NICET as fire-alarm technicians and shall be supervised by personnel certified by NICET as fire-alarm technician.

B. Source Limitations for Fire-Alarm System and Components: Obtain fire-alarm system from single source from single manufacturer.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL or an agency acceptable to the FDNY.

E. Compliance with Local Requirements: Comply with the NYC Building code, and regulations, and the requirements of the NYC DOB and FDNY.

F. Comply with NFPA 70 as amended by NYC DOB and FDNY.

G. Comply with NFPA 72.

H. Comply with UL 864.

I. Comply with Americans with Disabilities Act (ADA) and NY State Local Laws.

J. Comply with NEMA Standards Publication SB 30 “Fire Service Annunciator and Interface”.

K. Listing and Labeling: Provide fire alarm systems and components specified in this Section that are listed and labeled by Factory Mutual and Underwriters Laboratories.

L. The system shall be complete with all components and wiring required for compliance with NYC Building Codes and NFPA requirements, and for its operation as described hereinafter. No exclusion from or limitation in the symbolism used on the drawings or the language used in these specifications shall be interpreted as a reason for omitting any appurtenances or accessories required to enable the system to perform the specified functions.

M. Upon completion of the installation (and as directed by the Commissioner), the work shall include making all arrangements and providing any assistance necessary for inspection and test as required for approval by the Fire Department. Modifications, adjustments, and/or corrective work necessary to obtain approval along with subsequent inspection and test resulting from the issuance of a "Notice of Defect" shall precede any consideration of formal acceptance by the Commissioner. In conjunction with the above, instruction as deemed necessary to instruct authorized building personnel in the proper operation of the system shall also form a part of the required work.

1.9 PROJECT CONDITIONS

A. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Theater for the New City unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify the Commissioner no fewer than two days in advance of proposed interruption of fire-alarm service.

2. Do not proceed with interruption of fire-alarm service without the Commissioner’s written permission.

1.10 SEQUENCING AND SCHEDULING

A. Early completion of the Fire Protective Alarm system shall be required so as to permit a certificate of occupancy to be obtained in a timely manner, in accordance with a schedule established by the Commissioner.

B. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

C. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.11 SOFTWARE SERVICE

A. Comply with UL 864.

B. Technical Support: Beginning with Substantial Completion, provide software support for one year.

C. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within one year from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to the Commissioner to allow scheduling and access to system and to allow the building owner to upgrade computer equipment if necessary.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer:

1. Edwards, Division of UTC. No substitutions

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. The system shall incorporate alarm (and other) operating features as follows:

INITIATION	RESULTING OPERATION
Operation of manual fire alarm stations	Sound audible signal and flash visual fire warning signals throughout building sound audible signal and display “manual station” zone identification at fire alarm control panel and outlying annunciators. Operate relay at fire alarm control panel to accommodate transmission of an “alarm” signal to central station location. Operate outlying addressable modules to control the operation of equipment as described hereinafter.

INITIATION	RESULTING OPERATION
Triggering of duct smoke detector	Initiate an automatic alarm zone verification sequence. Upon verification, sound audible signals and flash visual fire warning signals as noted for manual stations. Sound audible signal and display "duct smoke" detector and zone identification at fire alarm control panel and outlying annunciators. Operate relay at fire alarm control panel to accommodate transmission of an “alarm” signal to central station location. Operate relay at fire alarm control panel to accommodate transmission of an “alarm” signal as specified above for manual stations. Operate outlying addressable modules to accommodate transmission of signals to dampers, fans, and/or other equipment as described hereinafter.
Triggering of area smoke or heat detector.	Initiate an automatic alarm zone verification sequence. Upon verification, sound audible signals and flash visual fire warning signals as noted for manual stations. (Omit alarm verification sequence for heat detectors. Sound audible signal and display "area smoke" or "area heat" detector and zone identification at fire alarm control panel and outlying annunciators. Operate outlying addressable modules to accommodate transmission of signals to dampers, fans, or other equipment as described hereinafter.
Operation of “master alarm” switch at fire alarm control panel.	Sound evacuation tone on all speakers in building and flash all strobes.

INITIATION	RESULTING OPERATION
Operation of "outside assistance" key switch at the fire alarm control panel.	Operate relay at fire alarm control panel to accommodate transmission of signal to central station location.
Activation of "CO" detector alarm	Operate a supervisory condition at the fire alarm panel with a "CO" message on the fire alarm 'LCD.' Actuate audible supervisory signal. Transmit supervisory signal to central station. Shut down heating and ventilation units.

2.3 FIRE-ALARM CONTROL UNIT

A. General Requirements for Fire-Alarm Control Panel (FACP):

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864 and listed and labeled by an NRTL.

    a. System software and programs shall be held in flash electrically erasable programmable read-only memory (EEPROM), retaining the information through failure of primary and secondary power supplies.

    b. Include a real-time clock for time annotation of events on the event recorder and printer.

2. Addressable initiation devices that communicate device identity and status.

    a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at fire-alarm control unit.

    b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.

3. Addressable control circuits for operation of mechanical equipment.

4. Control and monitoring of audible and visual alarm notification devices (loudspeakers and strobes) and associated circuitry shall be by means of addressable modules located in outlying system control cabinets.

5. The fire alarm control panel (i.e., the display and control section of the central equipment that requires operator interface) shall include all components necessary for the system to function as specified, and shall incorporate a custom built display panel arranged to match the main lobby decor as directed by the Commissioner. The display panel shall be arranged to enable a minimum of four simultaneous alarms to be displayed and shall include an overflow indicator and alarm advance feature. The display panel shall incorporate a back illuminated flashing fire sign module with 3 inch (7.6 cm) high red letters. Components of the central equipment that do not require operator interface shall be mounted in racks or cabinets. If space conditions so require such equipment shall be remotely located where indicated on the drawings or within 50 feet (15 meters) of the fire alarm control panel in a nearby, unfinished, ventilated space (as directed by the Commissioner). All required interconnections shall be included and shall be run in conduit.

6. Overall system supervision shall be accomplished by means of the response to continuous interrogating signals transmitted from the central equipment. The signal transmission rate shall be such that an "alarm" or "trouble" signal is processed and displayed within a 10 second maximum response time, and that subsequent initiation of automatic actions (fan shutdown, e.g.) shall be similarly initiated within 10 seconds.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 3 line(s) of 80 characters, minimum.

2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

3. LCDs and keyboards shall be "user friendly" incorporating the following features:

   a. English language display.

   b. Visually displayed prompts for access to "help screens," "system status files," etc.

   c. Keyboard shall include special function keys whose functions are clearly evident, e.g., "stop," "open," "close," "status," "fans," "damper," "help."

4. System software shall be such that the use of the aforementioned special function keys shall enable commands to be carried out with minimum effort.

5. In lieu of the special function keys and associated software as described above, system software may be of a type that permits direct "English language" keyboard entries (without the need for look-up tables) as required for the manual control of fans and dampers for smoke control functions.

6. System display shall be prioritized so as to display alarms, controlled equipment status, supervisory indications and system test reports in a sequence and format as approved by the Commissioner and by NYC DOB & FDNY.

7. Equipment status display shall be derived from addressable monitoring modules controlled by limit switches or auxiliary contacts as indicated elsewhere.

8. Equipment status and/or changes in equipment status shall not be automatically displayed except that changes in status of equipment may be automatically displayed if they result from a fire alarm initiation event.

9. Where the status of equipment controlled by alarm initiation is not automatically displayed, the manual steps necessary to provide this display shall appear on the display screen along with the alarms.

10. Display formats that employ mnemonic codes and/or that depend upon written text material in order to properly operate the system shall not be considered as meeting these specifications.

C. Circuits:

1. Signaling Line Circuits

a. Trunk Signaling Line Circuits: Circuits between the head-end equipment and outlying control cabinets. NFPA 72, Class X (formerly Class A, Style 7).

1) The loop conductors shall be run in raceways (as specified hereinafter) throughout. The "sending" portion of the loops shall be physically separated from the "return" by a distance of not less than 50 feet (15 meters) except where they come together at the FACP, and each shall be 2-hour rated as specified.

2) Within each outlying equipment control cabinet, and at the "sending" and "return" connections at the system head-end equipment, each loop shall incorporate isolators to sectionalize the loops. Two isolators per loop shall be provided in each outlying equipment control cabinet. They shall be so arranged that the wiring within the cabinet and the outgoing branch circuits can be completely isolated from upstream or downstream faults on the trunk loops.

3) The trunk SLCs - in conjunction with their associated isolators and head end equipment - shall function so as to provide bi-directional signal transmission enabling receipt of alarms and signals at the FACP, and activation of addressable control modules from the FACP, in the event of a single open, a single ground, a wire-to-wire short or an open and a ground anywhere on the circuit. The only loss of transmission shall be for devices and/or modules connected to that portion of the loop (between isolators within the ECC) on which the wiring fault has occurred. Wiring faults on the loops shall result in trouble signals at the FACP that identifies the location of the faults.

b. Branch Signaling Line Circuits: Circuits intended for the direct connection of outlying addressable initiating devices and/or modules. NFPA 72, Class A (formerly Class A, Style 6).

1) Include multiple "branch" SLCs within outlying system equipment control cabinets (ECCs) as required to ensure that no more than 50 alarm initiating devices and/or addressable monitoring modules associated with non-addressable alarm or supervisory initiating devices shall be connected to a single "branch" SLC. Each "branch" SLC shall be tapped from a "trunk" SLC by means of isolators that will disconnect it from the "trunk" SLC in the event of a wire-to-wire short (and will initiate a trouble signal identifying the fault at the FACP) so as to allow the remaining "branch" SLCs originating within the same ECC to function normally.

2) Sending and return conductors shall be separated by a distance of not less than 20 feet (6 meters) except where they come together at ECCs, devices or modules.

3) Where required for the accommodation of auxiliary control relays associated with outlying addressable control modules as described in later subsections, incorporate additional supervised power supply conductors originating at the ECCs.

4) The loop conductors shall be run in raceways (as specified hereinafter) throughout, except that raceways may be omitted where conductors shall be concealed in the voids of removable hung ceilings, as specifically approved by the Commissioner.

5) The "branch" SLCs shall function in conjunction with upstream circuitry and head-end equipment so as to provide bi-directional signal transmission enabling receipt of alarms and monitoring signals at the FACP, and activation of addressable control modules from the FACP, in the event of a single open, a single ground or an open and a ground on the circuit. Wiring faults on the circuits shall result in trouble signals at the FACP, identifying the faulted circuit.

2. Initiating Device Circuits: NFPA 72 Class A. NFPA 72 Class B.

   a. Conductors for IDCs shall be installed in accordance with the requirements specified above for "branch" SLCs.

3. Notification Appliance Circuits: NFPA 72 Class A.

   a. Conductors for IDCs shall be installed in accordance with the requirements specified above for "branch" SLCs.

4. Circuits supplying outlying annunciators shall comply with the requirements specified hereinbefore for notification appliance circuits (NACs).

5. Alternate circuitry and equipment arrangements that provide equal reliability (i.e., the ability to transmit and receive signals in the event of wiring faults) will be considered acceptable subject to proof of the reliability equivalence. In particular, systems employing dual communications buses will be considered if automatic transfer between buses without the loss of existing information occurs in the event of a wiring fault or equipment failure associated with one bus.

6. Risers or trunk circuits supplying multiple floors shall be so arranged as to protect against the inability to initiate evacuation signals on more than one floor (or zone) in the event of fire on a single floor. To accomplish this, sending and return portions of loops or dual communications buses shall be so located as to be separated by a distance of not less than 50 feet (15 meters), and each shall be 2-hour rated as hereinafter specified.

7. Note that the use of "T-taps" or other such wiring techniques that limit the ability of addressable devices, addressable modules, loudspeaker, strobes, or other devices to function normally in the event of wiring faults as described hereinbefore will not be allowed.

8. Provide the following as 2-hour rated cable or cable system except where enclosed within 2-hour rated construction as indicated on the architectural drawings:

   a. Trunk signaling line circuits (Trunk SLCs).

   b. Notification appliance circuits (NACs) until they enter the evacuation signaling zone that they serve.

9. System equipment shall be of a type that ensures that all signal and communication circuits shall be of the "power limited fire protective limited fire protective signaling type" as defined in Article 760 of the National Electrical Code.

D. System supervision of outlying circuitry and equipment shall incorporate the following:

1. Supervision against circuitry wiring faults as described hereinbefore.

2. Supervision against unauthorized access and/or removal of components at ECCs as described hereinbefore.

3. Supervision of addressable alarm initiating devices, addressable control or monitoring modules, and other outlying devices against removal, or - as described hereinbefore - against malfunction.

4. Supervision of power supplies. Failure of any system power supply shall cause a trouble signal at the FACP identifying the affected power supply.

5. Supervision of smoke detector/sensor device sensitivity so as to provide a "dirty head" notification at the FACP identifying the affected device.

6. Supervision against loss of voltage at any system component requiring power for its proper operation. Such failure shall cause a trouble signal at the FACP identifying the location of the affected device(s).

7. Supervision against "off-normal" manually initiated actions at the FACP. Any such action shall cause an identifying trouble signal at the FACP.

E. Smoke-Alarm Verification for area type detectors:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.

2. Activate an NRTL-listed and -approved "alarm-verification" sequence at fire-alarm control unit and detector.

3. Initiate alarm sequence if the alarm is verified.

4. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

F. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory.

G. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

H. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, and all system equipment shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

I. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed, valve-regulated, recombinant lead acid.

J. Instructions: Printed instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Single-action mechanism, with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.

2. Station Reset: Key- or wrench-operated switch.

3. Indoor Protective Shield: Factory-fabricated clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

4. Weatherproof Protective Shield: Factory-fabricated clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

B. Each station shall include an integral addressable monitor module (AMM) to permit a separately identifiable signal to be transmitted to the fire alarm control panel via signaling line circuits. The station's "electronics" shall be mounted behind the body of the station, accessible by authorized personnel only.

1. For manual stations located in unheated spaces provide the associated AMM located in a nearby heated space as indicated or as directed by the Commissioner. Provide all required circuitry.

2. For manual stations located in damp or wet environments provide devices labeled for use in such locations.

2.5 SYSTEM SMOKE DETECTORS

A. Smoke detectors (also referred to as smoke sensors or sensor/detectors) shall be of the analog-addressable spot detector type. They shall be UL approved and installed in accordance with the manufacturer's recommendations as to spacing and suitability for use in the specific application with consideration for the number of air changes per hour, ceiling height, ceiling profile, normal space environment (i.e., office space as compared to boiler rooms, etc.), and the type of risk. Detectors, for ceiling mounting in finished spaces, shall be of the semi-flush type. It shall be understood that semi-flush mounting requires the device to be suitable for application to a concealed outlet box.

B. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.

2. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Base shall include integral addressable module arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit. Provide terminals in the fixed base for connection to building wiring.

3. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.

4. Integral Visual-Indicating Light: LED type indicating detector has operated and power-on status.

5. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit. For combination heat / smoke detectors:

a. Rate-of-rise temperature characteristic shall be selectable at fire-alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.

b. Fixed-temperature sensing shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).

6. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

7. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.

b. Device type.

c. Present average value.

d. Present sensitivity selected.

e. Sensor range (normal, dirty, etc.).

C. Except as noted below, smoke detectors shall be of the photoelectric cell type with UL approved field adjustable sensitivity features.

D. Smoke or heat detection devices indicated in boiler rooms shall be of the 190 degrees F (88 degrees C) "fixed temperature only" type.

E. Smoke detectors indicated in mechanical equipment rooms shall be of the combination photocell plus fixed temperature/rate-of-rise type.

1. Rate-of-rise temperature characteristics shall be selectable for 15 or 20 deg F. (8 or 11 deg. C) per minute.

2. Fixed-temperature sensing shall be independent of rate-of-riser sensing and shall be selectable at 135 or 155 Deg. F (57 or 68 Deg. C).

F. Smoke detection devices that are mounted in ducts shall be supplied with remote "triggered" indication pilot wired in parallel, in an approved manner, with the similar pilots included integrally with detection units. The pilots for duct detectors shall be each flush or surface mounted within 15 feet (4.5 meters) circuiting distance of its associated detector. Mounting and location shall be as directed by the Commissioner.

G. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector.

2. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.

3. Smoke detection devices that are mounted in ducts shall be supplied with remote "triggered" indication pilot wired in parallel, in an approved manner, with the similar pilots included integrally with detection units. The pilots for duct detectors shall be each flush or surface mounted within 15 feet (4.5 m) circuiting distance of its associated detector. Mounting and location shall be as directed by the Commissioner.

4. Duct smoke detectors shall be installed in accordance with the manufacturer's recommendations as to suitability for use in the specific application with consideration to air changes, size of duct, and location within duct, and shall include sampling chambers and pick up tubes where required. Where installed within ducts and/or above ceilings in air plenums, the provision of access doors and mounting holes in such ducts and plenums will be separate from this work. The installation of the tubes and sampling chambers, however, is part of the work of this section. In addition, responsibility for supplying detailed drawings showing exact dimensional locations of sampling tubes, etc., in the plenums and ducts, as required for the optimum operation will be part of this work. Where duct configuration is such as to interfere with laminar air flow, special provisions are included as follows:

   a. For unducted return systems, provide area type detectors, suitable for 500 feet per minute (150 meters per minute) air velocity, pipe mounted in the ceiling at the entry to the fan room. While every attempt has been made to properly define the required quantity of detectors (labeled “d”), at each such location, it is understood that detectors are provided on the following basis, regardless of the indicated quantities:

Duct Width	Quantity of Detectors
not more than 36 inches (91 cm)	1
greater than 36 inches (91 cm) but not more than 72 inches (182 cm)	2
greater than 72 inches (182 cm)	2 + (1) per each additional 24 inches (61 cm)

5. For each smoke detector mounted in a shaft, provide a fire rated access door of a type and finish approved by the Commissioner.

H. Addressable Carbon Monoxide (CO) Detector.

1. Provide an intelligent addressable Carbon Monoxide alarm as required by Chapter 9. The CO detection element shall indicate a trouble condition at the FACP signaling end of life and be replaceable. The CO detector shall be UL 2075 listed.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 190 deg F (88 deg C). For use in boiler rooms, kitchens, and other rooms where a high ambient temperature is anticipated.

D. For detectors located in damp or wet environments provide devices labeled for use in such locations.

2.7 CARBON MINOXIDE DETECTORS

A. Furnish and install carbon monoxide detector with sounder base in locations indicated on the drawings and specified herein.

B. The carbon monoxide detectors shall be located in any room containing CO-producing equipment

C. Provide an auxiliary relay and install control wiring to shutdown the carbon monoxide producing equipment within the room where the detector is located in event of detector activation.

D. System activation shall indicate as a supervisory signal at the control panel, and transmit signal to the central station.

E. Install the system in accordance with NFPA 720-2012 as amended by NYC rule §908-01.

F. Comply with UL 2075

2.8 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification appliance signal circuits, equipped for mounting as indicated, and with screw terminals for system connections.

1. Each enclosure assembly except those in stairs shall incorporate an integral visual warning signal (strobe) as described hereinafter.

2. Where indicated as being of the flush mounted type, they shall each consist of a round or square grille plate and flush mounting back box.

3. Where indicated as being of the surface mounted type, they shall each consist of an integral assembly of grille and enclosure, fully enclosing the appliance and associated electronics and/or matching transformer.

4. Where indicated as being of the bracket type, they shall each consist of an assembly of bracket mounting frame and audible appliance enclosure. Where two audible appliances are shown in a back to back configuration, or where the audible appliance is called-out as bi-directional, the two appliances shall be incorporated into a single assembly.

5. Mounting Faceplate: Factory finished, red.

6. Mounting: Flush wall as standard, unless otherwise indicated on the drawings.

7. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

8. For appliances located in damp or wet environments provide devices labeled for use in such locations.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBa, measured 10 feet (3 m) from the horn, using the coded signal prescribed in UL 464 test protocol.

C. Visible Notification Appliances: Xenon strobe lights comply with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch-(25-mm-) high letters on the lens. Strobes shall be suitable for operation at a nominal voltage of 24 volts D.C. from power supplied by the system.

1. Rated Light Output: As indicated on drawings. Where not indicated, output shall be 15/30/75/110 cd, selectable in the field.

2. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.

3. Flashing shall be in a temporal pattern, synchronized with other units. Units shall be suitable for synchronized operation at a flash rate of 1 to 1.1 flashes per second, and shall be of the self-synchronizing type or shall be suitable for use with synchronizing control units integral with the power supplies, or interpolated in the circuitry between power supplies and strobes (visual notification appliances). Where not of the self-synchronized type, provide a sufficient quantity of synchronizing control units to fully utilize the installed power supply capacity for the project.

4. Strobes shall continue to flash until the system is reset.

5. Strobe Leads: Factory connected to screw terminals.

6. Strobes shall be circuited as required, with no less than two circuits per evacuation signaling zone. Strobes shall be connected to these circuits so that adjacent strobes shall be connected to different circuits.

2.9 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.10 OUTLYING ADDRESSABLE MODULES

A. Addressable Interface Device

1. Description: Microelectronic monitor module, UL listed for use in providing a system address for alarm initiating devices for wired applications with normally open contacts.

B. Outlying addressable module boxes (or cabinets) shall be distributed throughout the project and contain addressable monitoring and/or control modules as follows:

1. An addressable monitoring module ("initiating device" type, i.e., AMM/ID) shall be provided adjacent to each sprinkler or standpipe waterflow device and each non-addressable alarm or supervisory initiating device.

2. An addressable control module (ACM) shall be provided adjacent to each fan motor controller (or other device controller) for equipment whose operation must be automatically and/or manually controlled by the fire alarm system. Where two items are to be controlled at the same location, two such ACM units shall be provided.

3. An addressable monitoring module ("status" type, i.e., AMM/S) shall be provided adjacent to each fan motor controller (or other device controller) for equipment whose operational status must be monitored by the Fire Alarm System. Where two status indications are to be monitored for equipment items (such as smoke purge dampers), two such AMM/S units shall be provided.

4. Auxiliary relays shall be provided to comply with requirements specified hereinafter.

2.11 FUNCTIONAL DESCRIPTION OF SYSTEM

A. Include system functions and operating features as described below, plus those additional functions and features required by the FDNY. (i.e., initiation of alarm signals or operation of equipment control relays).

B. The central equipment of the system shall incorporate redundant components so that the failure of any component does not interfere with system operation as described hereinafter. Submission of the system for approval shall include a detailed description of how compliance with this requirement is accomplished.

C. System supervision shall be such that the ability of all addressable alarm initiating devices and addressable modules to communicate with the central equipment is constantly monitored, and such failure results in an audible signal at the Fire Alarm Control Panel (FACP) and outlying annunciator(s) and a visual annunciation identifying the faulted device or module.

D. The system shall utilize a liquid crystal display (LCD) or electro-luminescent display capable of displaying at least 20 lines, with 80 characters per line for the display of all required alarm and equipment status information, and an associated keyboard to permit manual access to the system. For fire department use, selector switch and pilot light modules shall be also included at the Fire alarm control panel for status and manual access to fans and dampers. System response time shall be such that alarm indications shall be displayed within 10 seconds of occurrence. No portion of the "executive" program shall be stored on magnetic media. It shall be entered into the system by means of "firmware."

E. Smoke detection devices (variously identified herein as "smoke detectors," "smoke sensors,," and "smoke sensor/detectors") shall be understood to be of the analog addressable smoke sensor type, for which the decision to initiate an alarm in response to the presence of smoke shall be software-driven from the fire alarm system central equipment. Provisions shall be incorporated at the central equipment to manually test and/or adjust the sensitivity of each smoke detector individually by means of a keyboard or keypad without requiring any replacement of equipment and/or "burning in" of firmware, and to print out a record thereof. The system shall also incorporate "alarm verification" features enabling a time-delayed re-check of any smoke detection signal prior to acknowledging a smoke alarm condition and acting thereon.

F. Power supplies serving visual warning signals shall be of the regulated type having an output of 28 VDC (adjustable to 30 VDC) plus or minus 3 percent.

G. Reset of all alarm initiating device circuits, alarm notification circuits, and equipment control relays shall be accomplished from the fire alarm control panel. Manual fire alarm stations shall require local reset before central reset from the fire alarm control panel is possible. In no case will the above alarm reset procedure cause the re-setting of equipment control relays. Such devices shall require separate reset from the fire alarm control panel.

H. It shall be possible to disconnect any floor, or any device or combination of devices on any floor, from the system to allow for maintenance, repairs, or the addition of system devices and wiring without disabling any other floor. Such disconnection shall cause a visual "disabled" annunciation at the fire alarm control panel identifying the floor and/or devices.

I. Each manual station, smoke or heat detector, or supervisory actuating device, and sub-system alarm or supervisory initiating device shall constitute a separate zone for reporting to the fire alarm control panel and at outlying annunciator(s), each reporting zone (i.e., device) shall be individually identified, except that multiple smoke detectors (or multiple heat detectors) located within a single space may be identified by a common display. It shall be possible to separately identify and display the address of the individual detector(s) in alarm within any such space by means of an appropriate command at the FACP or keypad.

J. As part of this work, each outlying component requiring a power supply for its proper operation shall receive this supply over wires extended from the central equipment in a code approved manner. Power supply circuitry shall be 2-hour rated cable or cable system except where enclosed within 2-hour rated construction as indicated on the architectural drawings.

K. The system shall include the following features associated with the analog addressable smoke detectors (sensors):

1. An independent "alarm verification" feature for each individual smoke detector. In response to activation of a detector, the system shall not go into alarm until the detector has been reset, and has gone into alarm once again. A suitable, adjustable, time delay shall be incorporated into the reset procedure. Provisions shall be incorporated to bypass this alarm verification feature for any or all detectors so as to comply with FDNY requirements.

2. An independent "maintenance alert" feature for each individual detector, providing a notification at the FACP identifying any detector that is operating at or above a pre-determined adjustable percentage of its alarm threshold.

3. An independent "sensitivity adjustment" feature for each individual detector, allowing the adjustment to be made from the FACP.

4. An independent "test" feature for each individual detector, allowing detector operation to be checked from - and its sensitivity reported at - the FACP.

5. A "status report" feature that provides status reports and detector sensitivity reports for each individual detector. Status reports shall include a summary of any initiating devices (smoke detectors or other) that have been manually disabled by operator action. Such reports shall be printed out in response to a command from the FACP.

L. The central equipment shall be supplied with an emergency power unit including batteries and battery charging equipment that shall maintain this cabinet and all outlying equipment that it subfeeds operational without any change in status for a minimum period of twenty-four (24) hours. The emergency power unit shall be sized to meet the following minimum requirements: operating in normal (supervisory) mode, twenty-four (24) hours, followed by 4 hours of emergency operation, except that voice alarm signaling need operate for only fifteen minutes at maximum connected load. Increase if necessary to conform to additional requirements imposed by code enforcement agency. Optionally, emergency power to supply outlying equipment may be provided by local battery and charger units contained within the equipment. Battery low voltage alarm contacts shall activate "trouble" indication at the central equipment. Batteries shall be of the sealed maintenance free type.

M. The central equipment and outlying equipment cabinets shall incorporate power supply provisions capable of accommodating strobes (either individually mounted or incorporated integrally with horns on the basis of the indicated quantity of strobes, including any strobes specified in bulk, plus 50 percent spare. Risers shall be sized to accommodate an "all call" arrangement for strobe operation. Emergency power for the strobes shall be provided by means of batteries and chargers located in the outlying equipment cabinets, and sized for 5 minutes of continuous operation after 24 hours of supervision. Batteries shall be of the sealed maintenance free type.

N. Central equipment, signal transmission facilities, and outlying control cabinets shall have capacity to handle spare points (that are in addition to those required for all functions hereinbefore specified and/or indicated in the drawings) in accordance with the following criteria:

1. "Trunk" and "branch" signaling line circuits (SLCs) shall be capable of accommodating:

    a. Twelve spare alarm or supervisory initiating device points per floor.

    b. Eight spare equipment control points per floor. Each equipment control point shall be understood to consist of two independent control functions plus two independent monitoring (i.e., "status") functions.

2. System equipment control cabinets shall accommodate trunk and branch circuits adequate for the required active points plus the spare points and devices specified above, and power supplies contained therein shall be adequate for these quantities.

3. The central equipment shall have capacity for the spare points described above, plus an additional capacity equal to 25 percent of those described above. The central equipment shall contain all equipment and devices necessary to activate these spare points. Any software necessary to support these points shall also be included.

O. The system shall incorporate a "fail safe" control feature accounting for a lack of response to a fire alarm indication at the fire alarm control panel. The feature shall incorporate an "acknowledge" button on the fire alarm control panel, that if not depressed (following the appearance of a fire alarm indication) within a preset time period as stipulated by the FDNY, will cause the evacuation tone signal to be sounded through all loudspeaker stations on the system.

P. Physical features of the Fire Alarm System shall comply with the following:

1. Components indicated on the drawings shall be located where shown. Components that are required for proper operation, but that are not indicated on the drawings shall be located in fire alarm equipment closets, mechanical or electrical rooms, at accessible locations within suspended ceilings, or at locations for which express permission of the Commissioner has been obtained.

2. The visual aspect of all components of the system that are exposed to view shall be acceptable to the Commissioner.

3. Consoles shall be for desk or wall mounting or for setting into an architectural wall, cabinet or table as directed by the Commissioner.

Q. Unauthorized access to operable components at the Fire alarm control panel shall be prevented by means of lockable hinged doors on panels.

R. Operating instructions shall be provided within the FACP or mounted beyond glass in a frame adjacent thereto.

S. For the Central Station Service, provide a 3/4 inch (DN 21) empty rigid conduit from the Fire alarm control panel to the telephone frame room. Also provide a 2 #10 THWN in 3/4 inch (DN 21) conduit run from a 20 amp fuse cutout in the Fire Signaling System cutout panel to the telephone frame room. Terminate both runs as directed.

2.12 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632 and be listed and labeled by an NRTL.

B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture two telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

C. Local functions and display at the digital alarm communicator transmitter shall include the following:

1. Verification that both telephone lines are available.

2. Programming device.

3. LED display.

4. Manual test report function and manual transmission clear indication.

5. Communications failure with the central station or fire-alarm control unit.

D. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.

2. Address or Zone of the supervisory signal.

3. Address or Zone of the trouble-initiating device.

4. Loss of ac supply or loss of power.

5. Low battery.

6. Abnormal test signal.

7. Communication bus failure.

E. Secondary Power: from fire alarm system.

F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.13 DEVICE GUARDS

A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, audible/visual device, or other device requiring protection.

1. Listed for use with the device or appliance they protect.

2. Factory fabricated and furnished by manufacturer of device.

3. Finish: Paint of color to match the protected device.

PART 3 - EXECUTION

3.1 GENERAL

A. The following equipment is included in the project.

1. Loudspeaker (with integral strobe unit).

2. Manual fire alarm station.

3. Smoke detector for flush or surface mounting.

4. Smoke detector (with sampling tubes) for duct mounting.

5. Individually mounted strobe unit.

B. Include as part of this work the cleaning and sensitivity adjustment of smoke detectors and sampling tubes as needed during the warrantee period and the periodic regular testing of system devices to comply with NYC DOB and FDNY requirements, during the guarantee period.

C. The fire alarm system manufacturer shall stipulate to the following:

1. Upon acceptance of the system, the manufacturer, or his factory authorized distributor will turn over to the FDNY the job-specific program information (in electronic format) to enable the servicing, repair, and expansion of the system by any factory-approved service agency the FDNY opts to utilize.

3.2 INSTALLATION, GENERAL

A. Install system according to NFPA standards referred to in Parts 1 and 2 of this Section.

B. Each outlying component requiring a power supply for its proper operation shall receive this supply over wires extended from the central equipment in a code approved manner.

C. Comply with the applicable requirements of other sections of Division 26 for locating and routing circuitry, for installing circuitry, for firestopping and for identification.

D. Adjust the sensitivity of all smoke detector (sensors) on the basis of the actual environment to that each will be subjected (i.e., air movement, ambient dust/dirt levels and temperature, humidity levels) in accordance with manufacturer's instructions.

E. Paint the outside parts of all equipment cabinets and all junction boxes, pull boxes, and outlet boxes red.

3.3 EQUIPMENT INSTALLATION

A. Comply with NFPA 72 for installation of fire-alarm equipment.

B. Install equipment with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.

C. Smoke- or Heat-Detector Spacing:

1. Comply with NFPA 72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.

2. Comply with NFPA 72, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.

3. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to NFPA 72 including Appendix A and Appendix B.

4. HVAC: Locate detectors not closer than 5 feet (1.5 m) from air-supply diffuser or return-air opening.

5. Lighting Fixtures: Locate detectors not closer than 12 inches (300 mm) from any part of a lighting fixture.

D. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct.

E. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

F. Audible Alarm-Indicating Devices: Install such that the top is not less than 90 inches (2.29m) above finished floor and not less than 6 inches (.15 m) below the ceiling. Install and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.

G. Visible Alarm-Indicating Devices and Combination Audible and Visible Alarm Indicating Devices: Install such that the entire lens is not less than 80 inches (2.03 m) and not greater than 96 inches (2.40 m) above the finished floor, and not less than 6 inches (.15 m) below the ceiling. Install on flush-mounted back boxes. Provide box extension and furnish collar where wall depth cannot accommodate flush backbox.

H. Device Location-Indicating Lights: Locate in public space near the device they monitor.

I. Manual Pull Stations: Mount semiflush in recessed back boxes with top of operating handles 48 inches (1.22 m) above the finished floor.

J. Fire-Alarm Control Unit: Surface mounted, with tops of cabinets not more than 72 inches (1.83 m) above the finished floor.

K. Annunciator: Install with top of panel not more than 72 inches (1.83 m) above the finished floor.

3.4 WIRING INSTALLATION

A. Wiring Method: Install wiring in metal raceway in accordance with the following. Conceal raceway except in unfinished spaces and as indicated. Note that certain circuitry has been specified hereinbefore as 2-hour rated. These requirements are in addition to the requirements that follow.

1. All conduit and cable required for the system, including control circuitry extensions, is included as part of the work involved in providing it. All cable used, regardless of whether or not it is run in conduit as noted below, has a minimum temperature rating of 150 degree C and is teflon (or other approved low smoke, low flame producing fluoropolymer) insulated with fifteen (15) mil minimum insulation thickness. All cable used is protected with a red outer jacket of twenty-five (25) mils teflon (or other approved as noted above). Where necessary for proper system operation, circuitry utilizes twisted pairs, shielded if required. Cable is UL type FPLP repetitively labeled with its UL listed rating as “NYC Cert. Fire Alarm Cable”.

2. Cables shall be run in conduit except that conduit for other than "trunk" signaling line circuits may be omitted where circuitry is run concealed in the voids of readily removable hung ceilings or at other locations where specific approval in writing has been granted by the Commissioner. Conduit is electric metallic or threaded conduit subject to the restrictions specified elsewhere for light and power circuitry, except that any runs supplying 120 (or 120/208 volts from the system central equipment to outlying equipment are run only in threaded rigid steel conduit.

3. Raceways run within 8 feet of finished floor in mechanical rooms and elsewhere where subject to mechanical damage, shall be rigid galvanized conduit only.

B. Minimum conductor size for circuitry supplying audible or visual notification appliances shall be #16 AWG copper and for all other circuitry not specifically sized elsewhere minimum conductor size shall be #18 AWG copper.

C. Wiring within Enclosures: Install conductors parallel with or at right angles to the sides and back of the enclosure. Bundle, lace, and train the conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

D. Conduits shall not be permitted to enter the top of control cabinets. Only side and bottom entries shall be permitted.

E. Cable Taps: Use numbered terminal strips in junction, pull or outlet boxes, cabinets, or equipment enclosures where circuit connections are made.

F. Color Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color code for alarm circuit wiring and a different color code for supervisory circuits. Color-code audible alarm-notification circuits differently from alarm-initiating circuits. Use different colors for visual alarm-notification circuits. Paint fire alarm system junction boxes and covers red.

G. Where wires and cables are permitted to be run without conduit, they shall be independently supported from the building structure or ceiling suspension system at intervals not exceeding four feet on center, utilizing cable supports specifically approved for the purpose. Wires and cables shall not rest on or depend on support from suspended ceiling media (tiles, lath, plaster, as well as splines, runners, or bars in the plane of the ceiling), nor shall they be supported from pipes, ducts, or conduits. Where cables are bundled together, separate bundles shall be provided separately for each type of cabling and separately for each independent system. Bundling and/or supporting ties shall be of a type suitable for use in a ceiling air handling plenum regardless of whether or not installed in a plenum.

3.5 CONNECTIONS

A. Make addressable connections with a supervised interface device to the required devices and systems. Install the interface device less than 3 feet (1 m) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

B. Provide final connections (i.e., control circuit extensions) from each addressable module box to the equipment "controller" it services, utilizing THWN wires run in conduit in accordance with the following:

1. From each box supplying a fan motor, provide a 5 #14 control circuit run in conduit to the motor controller and connect as indicated on the drawings.

3.6 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit and remote annunciator.

3.7 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

3.8 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Commissioner.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

2. Engage the services of an independent testing agency approved by Commissioner where required.

C. Tests and Inspections:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed Record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" Table in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter.

b. Comply with "Visual Inspection Frequencies" Table in the "Inspection" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with "Test Methods" Table in the "Testing" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.

4. Test audible appliances for the private operating mode according to manufacturer's written instructions.

5. Test visible appliances for the public operating mode according to manufacturer's written instructions.

6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.9 DEMONSTRATION

A. Engage a factory-authorized service representative to instruct maintenance personnel to adjust, operate, and maintain fire-alarm system.

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THE CITY OF NEW YORK
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DIVISION OF PUBLIC BUILDINGS
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Department of Design and Construction

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

CONTRACT NO. 1 **HVAC Work**

Theater for the New City- HVAC Replacement

LOCATION: **155 First Avenue**
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CITY OF NEW YORK

Contractor

Dated _____ , 20 _____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20 _____