



Department of
Design and
Construction

PROJECT ID: PV274CHLL

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:

Chiller Replacement and BMS Upgrade

LOCATION: 47-01 111th Street
BOROUGH: Queens, 11368
CITY OF NEW YORK

CONTRACT NO. 1 HVAC WORK

Department of Cultural Affairs

WSP Engineers



Date: November 15, 2019

20-029



Lorraine Grillo
Commissioner

Jamie Torres-Springer
First Deputy Commissioner

Justin Walter
Chief Administrative Officer
Administration

Nicholas Mendoza
Agency Chief Contracting Officer

Lorraine Holley
Deputy ACCO

September 02, 2020

CERTIFIED MAIL - RETURN RECEIPT REQUEST

CDE AIR CONDITIONING CO.
321 39th Street
Brooklyn, NY 11232

RE: FMS ID: PV274CHLL
E-PIN: 85020B0036001
DDC PIN: 8502020PV0001C
CHILLER REPLACEMENT AND BMS
UPGRADE-BOROUGH OF QUEENS

NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of \$2,608,754.00 submitted at the bid opening on February 25, 2020. 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. This will be done by completing the attached Signature Agreement pages. 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.



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: appsupport@ddc.nyc.gov.

Sincerely,

A handwritten signature in black ink that reads "Lorraine Holley".

Lorraine Holley
Deputy ACCO

NOTICE TO BIDDERS:

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

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

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

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

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 Eligibility 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)

**BID BOOKLET
PART A**

PROJECT ID: PV274CHLL

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

BID BOOKLET

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

SPECIAL NOTICE TO BIDDERS

BID SUBMISSION REQUIREMENTS

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

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

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

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

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

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

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

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

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

- NOTES:**
- (1) All of the above referred to blank forms to be completed and submitted with the bid are included in the BID BOOKLET.
 - (2) If the bidder has any questions or requires additional information, please contact the 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.

Special Notice to Bidders – Proprietary Items

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

CONTRACT NO. 1:

1. Proprietary Item: *Building Management and Control System*
 Specification Section: *230923*
 Manufacturer: *Honeywell*
 Allowance Amount: *Not to Exceed \$53,500.00*

2. Proprietary Item: *Refrigeration Machines*
 Specification Section: *235500*
 Manufacturer: *Trane*
 Allowance Amount: *Not to Exceed \$420,000.00*

SPECIAL EXPERIENCE REQUIREMENTS

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

General Construction Contractor x YES NO

- (A) **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 rejection of the bid as non responsive.
- 1) The bidder must, with the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.
- (B) **QUALIFICATION FORM:** For each project submitted to 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.
- 1) Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with this special experience requirement must have held the following: (a) a significant management role in the prior entity with which he/she was affiliated, and (b) a significant management role in the entity submitting the bid for a period of six months or from the inception of the bidding entity.
 - 2) The bidder may not rely on the experience of its principals or other employees to demonstrate compliance with any other requirements, including without limitation, financial requirements or requirements for a specified minimum amount of annual gross revenues.
- (D) **JOINT VENTURES:** In the event the bidder is a joint venture, at least one firm in the joint venture must meet the above described experience requirements.
- (E) **COMPLIANCE:** Compliance with the experience requirements set forth herein will be determined solely by the City. The bidder is advised that failure to meet the above described experience will result in the rejection of the bid as non-responsive.

Qualification Form

Project ID: PV274CHLL

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

(See attached listing of contracts completed)

Name of Contractor: C.D.E. Air Conditioning Co., Inc.

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: _____

**C.D.E. AIR CONDITIONING CO., INC.
PARTIAL LIST OF COMPLETED PROJECTS**

PROJECT NAME AND LOCATION	PROJECT NUMBER	OWNER/CONTACT	TELEPHONE NO.	FINAL CONTRACT PRICE	COMPLETION DATE
Staten Island University Hospital (SIUH) UREA Make Ready	13-1707-18	EW Howell, Co. LLC Hans Laros	(516) 921-7100 (516) 390-8179	383,629	August, 2019
Hunts Point WPCP 1270 Ryawa Avenue, Bronx, NY	HP-237	Spectraserv, Inc. John Kling	(973) 589-0277	22,900	June, 2019
Baruch College HVAC & Controls Upgrade	3048509999	Genesys Engineering, P.C. Charles Klee Christopher Hollister	(914) 633-6490 (631) 974-5171 (914) 712-5840	8,831,090	February, 2019
Staten Island Armory Provide Energy Efficient Retrofit	45441H	Office of General Services (OGS) Tajudeen Alaya, Building CPM	(646) 296-2132	788,621	February, 2019
SUNY College of Optometry 33 West 42 nd Street, NY NY	41056-02	State University Construction Fund (SUCF) Simon Stein, RA	(518) 320-3230 (518) 729-6248	5,461,466	February, 2019
Brooklyn Central Library OneNYC Energy Retrofit	20151429177	NYC DDC Rajiv Bhagat	(718) 391-1132 (347) 203-1755	5,914,313	January, 2019
South West Brooklyn Marine Transfer Station 1824 Shore Parkway, Brooklyn NY	20141418737	Prismatic Develop/NYC DDC Mike Peppitone, Prismatic	(973) 882-1133 X266 (973) 776-4680	8,663,567	January, 2019
Christopher Street Substation - PATH Replacement and Upgrade HVAC Work	PAT-624.154	Mass Electric Construction Co. Ricky Kahy	(201) 930-4930	1,088,579	December, 2018
26 th Ward Water Pollution Control Plant	Project No. W/P-205 Contract 26W-12H	NYC Dept. of Environ. Protection Joanna Hehn	(718) 647-6510	12,927,364	December, 2018
SCA Headquarters - Data Center 3030 Thomson Avenue, LIC NY 11101	C000013304	Iannelli Construction Vincent Iannelli	(718) 836-2000	1,224,482	November, 2018
Susan Wagner High School - Black Box Theater	C000013573	Vertex Companies, Inc. Andrew Sargent	(646) 553-3500	4,274,313	November, 2018
PS 195 (Queens) Flood Elimination/Heating Plant Upgrade	C000013531	NYC SCA Muhammad Akbar	(917) 416-2608	6,632,268	October, 2018
PS 360 (Bronx) HVAC Replacement & New Roof	C000013495	NYC SCA Muhammad F. Sharif	(646) 879-1762	3,271,253	September, 2018
Asser Levy Bathhouse Boiler Reconstruction Asser Levy Place, NY NY	M64-213M	NYC Dept. of Parks & Recreation Vladimir Biba	(718) 760-6767 Call: (646) 879-6572	1,347,730	May, 2018
CUNY Data Center AC-8 Replacement	CITYW-CUCF-01-09- 07-GC-1	EPIC Management Dennis Hagerty	(845) 521-1022	381,180.00	March, 2018
23 rd Precinct Station House Installation of New Cooling Towers	20171406505	NYPD Stephen Sailer	(347) 245-8365	311,301	November, 2017
District 7 Sanitation Garage HVAC System Replacement	20151429101	NYC DDC Jermaine Francis	(718) 391-1342 (347) 401-4987	3,704,688	September, 2017

C.D.E. AIR CONDITIONING CO., INC.
PARTIAL LIST OF COMPLETED PROJECTS

Governor's Island Facilities Management Building 110	90088	The LiRo Group Nadia Usmani	(516) 434-9721	1,662,254	March, 2017
NYC College of Technology - NYGCT Boiler Plant Repairs	ES-GSN080S	The LiRo Group/Ecosystem Marco Barbosa	(516) 214-8472 (347) 901-0278	1,391,706	January, 2017
Pre-K 66 (Staten Island)	C000013711	Arnell Construction Alvin Rodriguez	(718) 852-8500	4,012,000	January, 2017
1625 Forest Avenue, Staten Island, NY	Project# WP-237 Contract BB-57H	Hazen & Sawyer/NYC DEP Eamon Kelly	(845) 642-4335	28,719,670	June, 2016
Bowery Bay W/PCP 4301 Berrian Boulevard, Astoria, New York	Project# WP-237 Contract BB-210	Spectraserv - CDM/NYPA John Kling	(973) 589-0277	2,083,679	April 2016
Bowery Bay W/PCP Anaerobic Digester Gas System Improvements 4301 Berrian Boulevard, Astoria, New York	ES-GSN-0543	Parson Brinckerhoff Frank Verni, RA	(212) 423-7881 (917) 658-4811	1,605,768	April, 2016
Metropolitan Hospital Center Energy Conservation HVAC Work	ES-GSN-0543	NYC Dept. of Parks & Recreation Vladimir Biba	(718) 760-6767 Cell: (646) 879-6572	879,676	March, 2016
Dapalto Recreation & John Jay Pool Reconstruction of Boilers	MG-113	Spectraserv - CDM/NYPA John Kling	(973) 589-0277	3,796,308	March, 2016
DEP Digester Gas System Improvement Various Locations - Oakwood Beach, Staten Island 26th Ward & Red Hook, Brooklyn, New York	ES-GSN-0149	Fratello Construction Steven Glanci	(631) 414-7171	2,392,110	February, 2016
New York Psychiatric Institute Conversion of 4th Floor to Wet Lab	44220-C	Detric Construction Robert Ricciardi	(973) 427-0058	691,345	February, 2016
PS 199 (Queens) Annex at St. Teresa 55-15 44th Street, Sunnyside, NY	C000013478	Skanska USA Building Bryan Kobb Sam Alacha	(917) 367-2246 (917) 444-0573 (212) 963-2477 (646) 208-1552	9,169,198	February, 2016
United Nations Package 3 - Airside Capital Master Plan	Contract B Package 3	NYC DDG Rebecca Clough	(718) 391-1127	1,518,657	December, 2015
120 Schemerhorn Street, Brooklyn, NY Boiler Feedwater System Replacement	Project No. C0781BOIL	Sea Crest Construction Corp. James Dergin	(516) 868-3000 Call: (516) 903-6619	347,000	July, 2015
Manhattan Psychiatric Center Wards Island Manhattan Forensic Relocation Package No. 1	44579	NYC DDG Charles Lin	(718) 391-1138 (917) 506-0551	790,199	April, 2015
Manhattan Theater Club Renovation at Friedman Theater	PV256-FRI	Triangle General Contractors Anant Nairaula	(718) 462-2608	19,641	April, 2015
PS 181 (K) 1023 York Avenue, Brooklyn NY	C000013191	NYC Dept. of Parks & Recreation Fred Hammerling	(718) 760-6643	880,721.00	January, 2015
Kingsbridge Heights Community Center Construction of HVAC System	Contract No. X250-109MA1	Hazen & Sawyer/NYC DEP Alex Klar, P.E.	(718) 609-8701	12,623,793	January, 2015
Manhattan Pumping Station Newtown Creek W/PCP	Project # WP-283 Contract NC-40H				

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.

NOTICE TO ALL PROSPECTIVE CONTRACTORS

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

ARTICLE I. M/WBE PROGRAM

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

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

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

PART A

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PART B: MISCELLANEOUS

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

ARTICLE II. ENFORCEMENT

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

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

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

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

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

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

Tax ID #: 11-2217107

APT E-
PIN#: 85020B0036

Contract # 1 - General Construction Work

SCHEDULE B - M/WBE Utilization Plan

Part I: M/WBE Participation Goals

Part I to be completed by contracting agency

Contract Overview

APT E-Pin # 85020B0036 FMS Project ID#: PV274CHLL
 Project Title/Agency Chiller Replacement and BMS Upgrade
 PIN # 8502020PV0001C
 Bid/Proposal
 Response Date: February 20, 2020 February 25, 2020
 Contracting Agency Department of Design and Construction
 Agency Address 30-30 Thomson Avenue City Long Island City State NY Zip Code 11101
 Contact Person Brandon Milliner Title MWBE Liaison & Compliance Analyst
 Telephone # (718) 391-1502 Email MillineBr@ddc.nyc.gov

Project Description (attach additional pages if necessary)

This project consists of a chiller system replacement at the museum. As a result of the HVAC upgrades, the related controls, electrical and plumbing systems will be upgraded to support.

M/WBE Participation Goals for Services

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

Prime Contract Industry: Construction

Group	Percentage	
Unspecified *	22	%
OR		
Black American	Unspecified	%
Hispanic American	Unspecified	%
Asian American	Unspecified	%
Women	Unspecified	%
Total Participation Goals	22	%

Line 1

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

Tax ID #: 11-2217107

APT E-

PIN#: 85020B0036

SCHEDULE B - Part II: M/WBE Participation Plan

Part II to be completed by the bidder/proposer:

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

Section I: Prime Contractor Contact Information			
Tax ID #	<u>11-2217107</u>	FMS Vendor ID #	<u>0000477680</u>
Business Name	<u>C.D.E. Air Conditioning Co., Inc.</u>	Contact Person	<u>Joseph F. Azara</u>
Address	<u>321 39th Street, Brooklyn, New York 11232</u>		
Telephone #	<u>718-788-1040</u>	Email	<u>josepha@cdeair.com</u>

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

PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS				
<input checked="" type="checkbox"/> For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals.	Total Bid/Proposal Value		Agency Total Participation Goals (Line 1, Page 6)	Calculated M/WBE Participation Amount
Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	\$ 2,120,254.	X	22%	= \$ 466,456. Line 2

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

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

Tax ID # CITY OF NEW YORK
DDC

APT E-

PIN#: 85020B0036

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

- As an M/WBE Prime Contractor that will self-perform and/or subcontract to other M/WBE firms a portion of the contract the value of which is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals. Please check all that apply to Prime Contractor.
- MBE WBE
- As a Qualified Joint Venture with an M/WBE partner, in which the value of the M/WBE partner's participation and/or the value of any work subcontracted to other M/WBE firms is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.
- As a non M/WBE Prime Contractor that will enter into subcontracts with M/WBE firms the value of which is at least the amount located on Lines 2 or 3 above, as applicable.

Section IV: General Contract Information

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

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

* M/WBE	* 1. Electrical Work	\$325,000.
	2. Rigging Work	35,000.
	3. G.E. Work	190,000.
	4. Steamfitting Work	600,000.
	5. Air Balancing Work	11,000.
	6. Insulation Work	49,000.
	* 7. Sheet Metal Work	35,000.
	8. Demolition Work	60,000.
✓ Scopes of Subcontract Work *	9. Control wiring work	50,000.
	10.	
	11.	
	12.	
	13.	
	14.	
	15.	
	16.	
	17.	

Section V: Vendor Certification and Required Affirmations

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

Signature 
 Print Name Joseph F. Azara

Date February 25, 2020
 Title President

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

Contract Overview

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

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

_____ % Agency M/WBE Participation Goal

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

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

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

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

References

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

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

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

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

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

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

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

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

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

Shaded area below is for agency completion only

AGENCY CHIEF CONTRACTING OFFICER APPROVAL
 Signature: _____ Date: _____

CITY CHIEF PROCUREMENT OFFICER APPROVAL
 Signature: _____ Date: _____

Waiver Determination

Full Waiver Approved:

Waiver Denied:

Partial Waiver Approved:

Revised Participation Goal: _____ %

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: PV274CHLL

Chiller Replacement and BMS Upgrade
47-01 111th Street
Queens, NY 11368

Name of Bidder: C.D.E. Air Conditioning Co., Inc.

Date of Bid Opening: February 25, 2020

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

Place of Business of Bidder: 321 39th Street, Brooklyn, New York 11232

Bidder's Telephone Number: 718-788-1040 Bidder's Fax Number: 718-788-2046

Bidder's Email Address: josepha@cdeair.com

Residence of Bidder (If Individual): _____

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

Names of Partners

Residence of Partners

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

Organized under the laws of the State of New York

Name and Home Address of President: Joseph F. Azara
215 Howard Avenue, Staten Island, New York 10301

Name and Home Address of Secretary: Brian J. Azara
130 92nd Street, Brooklyn, New York 11209

Name and Home Address of Treasurer: Christine R. Azara
215 Howard Avenue, Staten Island, New York 10301

BID FORM

The above-named Bidder affirms and declares:

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

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

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

6. Compliance Report

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

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

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

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

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

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

Section V: Vendor Certification and Required Affirmations:

I hereby:

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

BID FORM

PROJECT ID: PV274CHLL

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	
\$1,402,356.	\$717,898.	Total Price for Item A= \$2,120,254.00

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

C. AMOUNT for Proprietary Items (pages 2a) \$473,500.00


TOTAL BID PRICE (Add A + B + C) \$2,608,754.00
 (a/k/a BID PROPOSAL)

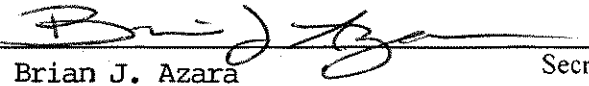
BB
2/25/20

BIDDER'S SIGNATURE AND AFFIDAVIT

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

Bidder: C.D.E. Air Conditioning Co., Inc.

By: 
 Joseph F. Azara (Signature of Partner or corporate officer)
 President

Attest:  Secretary of Corporate Bidder
 (Corporate Seal) Brian J. Azara

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:
Joseph F. Azara being duly sworn says:
I am the President of the above named corporation whose name is subscribed to and which executed
the foregoing bid. I reside at 215 Howard Avenue, Staten Island, New York 10301
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
25th day of Feb., 2020

Robert J. Ayoub
Notary Public

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

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: C.D.E. Air Conditioning Co., Inc.
Address: 321 39th Street
City: Brooklyn State: New York Zip Code: 11232


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

11-2217107

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.

BIDDER'S IDENTIFICATION OF SUBCONTRACTORS

Project ID: PV274CHLL

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. **ELECTRICAL CONTRACTOR:**

Description of ELECTRICAL Work:

Milad Contracting Corporation

Electrical Work

(Print Name)

Agreed amount to be paid Subcontractor: \$325,000.

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

C.D.E. Air Conditioning Co., Inc.

Joseph F. Azara


(Bidder's Signature)

(Print Name)

321 39th Street, Brooklyn, New York 11232

(Address)

President

(Title)

718-788-1040

(Phone #)

718-788-2046

(Fax#)

February 25, 2020

(Date)

BID BOND 1
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, C.D.E. Air Conditioning Co., Inc.
321 39th Street
Brooklyn, NY 11232

hereinafter referred to as the "Principal", and Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116

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

Ten Percent of Bid Amount

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

Whereas, the Principal is about to submit (or has submitted) to the City the accompanying proposal, hereby made a part hereof, to enter into a contract in writing for Project No. PV274CHLL; Contract No. 1 - HVAC
NY Hall of Science, Chiller Replacement & BMS Upgrade, 47-01 111th Street, Corona, Queens, NY 11368

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

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

BID BOND 2

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

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

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

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

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the 20th day of February, 2020.

(Seal)

C.D.E. Air Conditioning Co., Inc.

(L.S.)

Principal

By:

Joseph F. Azara
Joseph F. Azara, President

(Seal)

Liberty Mutual Insurance Company

Surety

By:

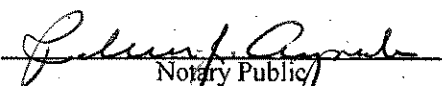
Andrea E. Gorbert
Andrea E. Gorbert, Attorney-In-Fact

BID BOND 3

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:
On this 20th day of February, 2020, before me personally came Joseph F. Azara to me known, who, being by me duly sworn, did depose and say that he resides at 215 Howard Avenue, Staten Island, NY 10301 that he is the President of C.D.E. Air Conditioning Co., 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.

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023


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

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.



CONTRACT 1 - HVAC

Project: NY Hall of Science Chiller Replacement & BMS Upgrade
 Location: 47-01 111th Street, Corona, NY 11368
 Bidder: C.D.E. Air Conditioning Co.,Inc.

DDC ID: PV274CHLL
 Sponsor Agency: Culturals

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
01 0000	GENERAL REQUIREMENTS (DDC GENERAL CONDITIONS)							
01 0000	General Requirements	18	mo	\$ 500.00	\$ 9,000	\$ 5,000.00	\$ 90,000	\$ 99,000
	Coordination	1	ls	\$ -	\$ -	\$ 20,000.00	\$ 20,000	\$ 20,000
	Mobilization	1	ls	\$ -	\$ -	\$ 106,000.00	\$ 106,000	\$ 106,000
	Temporary light & power			\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 225,000
02 0000	EXISTING CONDITIONS							
02 41 91	Selective Demolition, Removals , and Salvage							
	Remove existing concrete pad	1	ls	\$ 5,000.00	\$ 5,000	\$ 45,000.00	\$ 45,000	\$ 50,000
	Existing 8" High Concrete Pad To Remain			\$ -	\$ -	\$ -	\$ -	\$ -
	Clean, salvage, patching, repairs			\$ -	\$ -	\$ -	\$ -	\$ -
	Remove Double door	1	ls	\$ 600.00	\$ 600	\$ 1,000.00	\$ 1,000	\$ 1,600
	Remove existing Partition	1	ls	\$ 1,000.00	\$ 1,000	\$ 9,000.00	\$ 9,000	\$ 10,000
	Remove Existing GWB Ceiling	1	ls	\$ 100.00	\$ 100	\$ 1,500.00	\$ 1,500	\$ 1,600
	Remove Existing Suspended Acoustical Ceiling & Light Fixture	1	ls	\$ 500.00	\$ 500	\$ 3,500.00	\$ 3,500	\$ 4,000
	Temporary removed lockers and equipment in Staff locker room			\$ -	\$ -	\$ -	\$ -	\$ -
	Cut out opening for existing sprinkler head note at A-801			\$ -	\$ -	\$ -	\$ -	\$ -
	Temporary protection, access, etc	1	ls	\$ 1,000.00	\$ 1,000	\$ 4,000.00	\$ 4,000	\$ 5,000
	Demolition							
	Disconnect and remove existing chillers (300 tons each) with related piping and control	2	ea	\$ 2,500.00	\$ 5,000	\$ 25,000.00	\$ 50,000	\$ 55,000
	Breakdown unit sections for lifting and disposal of existing units			\$ -	\$ -	\$ -	\$ -	\$ -
	Disconnect and remove existing chilled water pumps 600 gpm with related piping and controls	4	ea	\$ 500.00	\$ 2,000	\$ 3,250.00	\$ 13,000	\$ 15,000
	Disconnect and remove existing condenser water pumps 900 gpm with related piping and control	4	ea	\$ 500.00	\$ 2,000	\$ 3,250.00	\$ 13,000	\$ 15,000
	Disconnect and remove existing refrigerant purge exhaust fan with related duct and control	1	ea	\$ 150.00	\$ 150	\$ 600.00	\$ 600	\$ 750
	Disconnect and remove existing air compressor	1	ea	\$ 1,000.00	\$ 1,000	\$ 4,000.00	\$ 4,000	\$ 5,000
	Disconnect and remove existing expansion tank and make-up water pump system with related piping	1	ls	\$ 1,000.00	\$ 1,000	\$ 4,000.00	\$ 4,000	\$ 5,000
	Temporary support for existing piping	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -



**Department of
Design and
Construction**

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - HVAC

Project: NY Hall of Science Chiller Replacement & BMS Upgrade
 Location: 47-01 111th Street, Corona, NY 11368
 Bidder: C.D.E. Air Conditioning Co., Inc.

DDC ID: PV274CHLL
 Sponsor Agency: Culturals

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Remove temporary support for piping	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Disconnect and store existing ductwork to provide pathway for chiller rigging	1	ls	\$ 150.00	\$ 150	\$ 1,500.00	\$ 1,500	\$ 1,650
	Cut and cap pipe (6" dia, 8" dia and 14" dia)		ea	\$ -	\$ -	\$ -	\$ -	\$ -
	Tie-out duct	4	ea	\$ 130.00	\$ 520	\$ 150.00	\$ 600	\$ 1,120
	Cut and cap hot water pipe (1" dia.)		lf	\$ -	\$ -	\$ -	\$ -	\$ -
	Misc. demolition requirements (incl. carting and disposal)	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 170,720
Div 3	Concrete							
03 01 30	Concrete Restoration							
	Concrete slab repairs, per detail 3/A-101.00	1	ls	\$ 1,200.00	\$ 1,200	\$ 6,000.00	\$ 6,000	\$ 7,200
	Subtotal							\$ 7,200
03 30 00	Cast-In-Place Concrete							
	8" High Concrete Pad	1	ls	\$ 600.00	\$ 600	\$ 3,000.00	\$ 3,000	\$ 3,600
	Concrete	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	Reinforcement assumed #5 rebar	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	Dowel into extg slab; 24:" oc.	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	Prepare extg slab for new slab	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	Formwork	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	Add cost for cut out	1	ls	\$ 600.00	\$ 600	\$ 2,400.00	\$ 2,400	\$ 3,000
	4" High Concrete Pad							
	Concrete	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Reinforcement #4 rebar	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Dowel into extg slab; 24:" oc.	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Prepare extg slab for new slab	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Formwork	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Subtotal							\$ 33,600
Div 7	Thermal & Moisture Protection							
07 84 13	Through-Penetration Firestop Systems							
	Firestopping	1	ls	\$ 500.00	\$ 500	\$ 2,000.00	\$ 2,000	\$ 2,500
	Subtotal							\$ 2,500



Project: NY Hall of Science Chiller Replacement & BMS Upgrade
 Location: 47-01 111th Street, Corona, NY 11368
 Bidder: C.D.E. Air Conditioning Co.,Inc.

CONTRACT 1 - HVAC

DDC ID: PV274CHLL
 Sponsor Agency: Culturals

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
Div 8	Openings							
08 11 13	Hollow Metal Doors and Frames							
	New 1-1/2 HR Rated 6'-0" x 7'-0" HM Double door with frame and Hardware	1	ea	\$ 3,000.00	\$ 3,000	\$ 8,500.00	\$ 8,500	\$ 11,500
08 71 00	Door Hardware			w/08 11 13				
Div 9	Finishes							
09 22 16	Non Structural Metal Framing							
	Type 1; 3-5/8" stud, 1 layer 5/8" abuse -resist ea side, 1 layer 5/8" M/R ea side	1	ls	\$ 6,000.00	\$ 6,000	\$ 24,000.00	\$ 24,000	\$ 30,000
	Patch	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Subtotal							\$ 43,900
09 29 00	Gypsum Board			w/09 22 16				
09 51 00	Acoustical Ceilings							
	Suspended GWB Ceiling	1	ls	\$ 1,200.00	\$ 1,200	\$ 4,800.00	\$ 4,800	\$ 6,000
	2'x2' Suspended Acoustical Ceiling	1	ls	\$ 6,000.00	\$ 6,000	\$ 12,000.00	\$ 12,000	\$ 18,000
	2'x4' Suspended Acoustical Ceiling	1	ls	\$ 6,000.00	\$ 6,000	\$ 12,000.00	\$ 12,000	\$ 18,000
	Subtotal							\$ 42,000
09 65 13	Resilient Base and Accessories							
	Vinyl Base at new partition	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Patch extg	1	ls	\$ 120.00	\$ 120	\$ 1,080.00	\$ 1,080	\$ 1,200
	Subtotal							\$ 3,600
09 91 23	Interior Painting							
	Paint GWB Partition	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Paint GWB Ceiling	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Paint door and frame	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Patch & painting as req	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Prime and Paint new 8" High Concrete Pad	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Prime and Paint new 4" High Concrete Pads	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520



**Department of
Design and
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CONTRACTOR'S BID BREAKDOWN FORM

Project: NY Hall of Science Chiller Replacement & BMS Upgrade
 Location: 47-01 111th Street, Corona, NY 11368
 Bidder: C.D.E. Air Conditioning Co., Inc.

CONTRACT 1 - HVAC

DDC ID: PV274CHLL
 Sponsor Agency: Culturals

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Existing 8" High Concrete Pad to Remain. Prime & Paint.	1	ls	\$ 120.00	\$ 120	\$ 2,400.00	\$ 2,400	\$ 2,520
	Subtotal							\$ 17,640
23 00 00	HVAC							
23 02 00	Firestopping							
	Firestopping	1	ls	\$ 1,200.00	\$ 1,200	\$ 4,800.00	\$ 4,800	\$ 6,000
23 05 13	Electric motors							
	With equipment costs below (23 21 23 - Pumps, 23 73 05 - Fans)							\$ -
23 05 16	Expansion Fittings and Loops for HVAC Piping				w/23 15 23			
23 05 19	Meters and gauges for HVAC Piping and Ductwork				w/23 05 23			
23 05 23	Valves							
	Hook-up chiller	2	ea	\$ 11,000.00	\$ 22,000	\$ 31,000.00	\$ 62,000	\$ 84,000
	Hook-up pump	8	ea	\$ 8,800.00	\$ 17,600	\$ 23,000.00	\$ 184,000	\$ 201,600
	Hook-up expansion tank and air separator	1	ls	\$ 4,000.00	\$ 4,000	\$ 6,000.00	\$ 6,000	\$ 10,000
	Make-up water pump	1	ea	\$ 2,000.00	\$ 2,000	\$ 4,800.00	\$ 4,800	\$ 6,800
	Misc. valves and specialties (6", 8", 10" - control, check shut-off, gate valves and strainers)	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 308,400
23 05 29	Hangars, anchors, and supports							
	Misc. equipment and pipe supports	1	ls	\$ 12,000.00	\$ 12,000	\$ 17,000.00	\$ 17,000	\$ 29,000
	Subtotal							\$ 29,000
23 05 40	Acoustics				w/23 05 48			
23 05 48	Vibration isolation							
	Vibration insulation @ pumps (8) and fan (1)	1	ls	\$ 15,000.00	\$ 15,000	\$ 5,000.00	\$ 5,000	\$ 20,000
	Subtotal							\$ 20,000



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DDC ID: PV274CHLL
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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
23 05 53	Systems identification							
	System ID / Valve tags	1	ls	\$ 1,500.00	\$ 1,500	\$ 4,500.00	\$ 4,500	\$ 6,000
	Subtotal							\$ 6,000
23 05 93	Testing, adjusting and balancing							
	Air and water test and balance adjustments and reports (including existing air devices)	1	ls	\$ -	\$ -	\$ 20,000.00	\$ 20,000	\$ 20,000
	Start-up, instructions, site specific requirements	1	ls	\$ -	\$ -	\$ 4,000.00	\$ 4,000	\$ 4,000
	Subtotal							\$ 24,000
23 07 00	Insulation							
	Pipe insulation	400	lf	\$ 26.25	\$ 10,500	\$ 60.00	\$ 24,000	\$ 34,500
	Duct insulation	240	sf	\$ 2.70	\$ 648	\$ 18.25	\$ 4,380	\$ 5,028
	Subtotal							\$ 39,528
23 09 00	Instruments							
	Miscellaneous control work requirements	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Calibration, testing, sequence and training temperature control system	1	ls	\$ -	\$ -	\$ 10,000.00	\$ 10,000	\$ 10,000
	Subtotal							\$ 10,000
23 09 23	Building Management and control system (BMCS)							
	Interface to existing system (Honeywell)	1	syst		\$ -	\$ 12,200.00	\$ 12,200	\$ 12,200
	Chillers (Honeywell)	2	ea		\$ -	\$ 35,000.00	\$ 70,000	\$ 70,000
	Pumps (Honeywell)	8	ea		\$ -	\$ 4,250.00	\$ 34,000	\$ 34,000
	Exhaust fan (Honeywell)	1	ea		\$ -	\$ 6,000.00	\$ 6,000	\$ 6,000
	Make-up water pump (Honeywell)	1	ea		\$ -	\$ 6,000.00	\$ 6,000	\$ 6,000
	L.V. and 120V ATC / BMS requirements (Honeywell)	1	sys		\$ -	\$ 9,200.00	\$ 9,200	\$ 9,200
	Additional controls upgrades (existing HVAC equipment) (Honeywell)	1	ls		\$ -	\$ 15,000.00	\$ 15,000	\$ 15,000
	Subtotal							\$ 152,400
23 11 13	Sheetmetal, Ductwork and Accessories							
	Galvanized steel ductwork	500	lbs	\$ 5.00	\$ 2,500	\$ 4.70	\$ 2,350	\$ 4,850



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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Tie-in duct	2	ea	\$ 400.00	\$ 800	\$ 400.00	\$ 800	\$ 1,600
	Clean existing ductwork	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 6,450
23 21 23	Pumps							
	CHWP-1, 2, 3, 4 - Chilled water pumps – 610 GPM, 30 hp, VFD	4	ea	\$ 9,000.00	\$ 9,000	\$ 5,000.00	\$ 20,000	\$ 29,000
	CWP-1, 2, 3, 4 - Condenser water pumps – 900 GPM, 30 hp, VFD	4	ea	\$ 9,000.00	\$ 9,000	\$ 5,000.00	\$ 20,000	\$ 29,000
	MUWP-1 - Make-up water pump - 2 hp, 6 gpm	1	ea	\$ 9,000.00	\$ 9,000	\$ 2,000.00	\$ 2,000	\$ 11,000
	Subtotal							\$ 69,000
23 25 00	Pipe cleaning and chemical water treatment							
	Cleaning, flushing & testing piping	1	ls	\$ 15,000.00	\$ 15,000	\$ 25,000.00	\$ 25,000	\$ 40,000
	Subtotal							\$ 40,000
23 26 00	Water specialties				w/23 25 00			
23 27 00	Water filters & cleaners							
	Remove and store existing filtration system and reinstall after replacement chillers	1	ls	\$ 12,000.00	\$ 12,000	\$ 22,000.00	\$ 22,000	\$ 34,000
	Subtotal							\$ 34,000
23 33 13	Dampers	11	ea.	\$ 850.00	\$ 9,350	\$ 2,400.00	\$ 26,400	\$ 35,750
23 36 10	Air Outlets and Inlets				w/23 11 13			
23 52 10	Piping and accessories							
	Chilled water & condenser water							
	14" dia header / fittings / supports	60	lf	\$ 460.00	\$ 27,600	\$ 1,200.00	\$ 72,000	\$ 99,600
	8" dia header / fittings / supports	100	lf	\$ 336.00	\$ 33,600	\$ 925.00	\$ 92,500	\$ 126,100
	10" dia pipe / fittings / supports		lf	\$ -	\$ -	\$ -	\$ -	\$ -
	8" dia pipe / fittings / supports		lf	\$ -	\$ -	\$ -	\$ -	\$ -
	6" dia pipe / fittings / supports	70	lf	\$ 81.00	\$ 5,670	\$ 230.00	\$ 16,100	\$ 21,770



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CONTRACT 1 - HVAC

DDC ID: PV274CHLL
 Sponsor Agency: Culturalurs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Tie-in to existing system	10	ea			\$ 2,000.00	\$ 20,000	\$ 20,000
	Misc. smaller size piping	1	ls	\$ 4,100.00	\$ 4,100	\$ 12,000.00	\$ 12,000	\$ 16,100
	Hot water drain piping, 1"		lf	\$ -	\$ -	\$ -	\$ -	\$ -
	1/2" Connection for existitng HVAC		ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Expansion tank - 159 gal	1	ea	\$ 3,600.00	\$ 3,600	\$ -	\$ -	\$ 3,600
	Air separator - 1800 gpm, 10" pipe size	1	ea	\$ 7,200.00	\$ 7,200	\$ -	\$ -	\$ 7,200
	Subtotal							\$ 294,370
23 55 00	Refrigerant machines (Water cooled)							
	Trane Centrifugal chiller 305 tons, (2) condenser 868.6 gpm, (1) compressor 191 kw	2	ea		\$ -	\$ 20,000.00	\$ 40,000	\$ 40,000
	Hoisting and setting	2	ea	\$ -	\$ -	\$ 25,500.00	\$ 51,000	\$ 51,000
	Subtotal							\$ 91,000
23 73 05	Fans							
	EF-1 - Refrigerant purge exhaust fan - 4500 cfm, 5 hp	1	ea	\$ 2,700.00	\$ 2,700	\$ -	\$ -	\$ 2,700
	Starter	1	ea	\$ 2,500.00	\$ 2,500	\$ -	\$ -	\$ 2,500
	Access door		ea	\$ -	\$ -	\$ -	\$ -	\$ -
	Flexible connection		ea	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 5,200
23 85 00	Variable frequency controllers							
	Variable frequency drive - 30 hp	4	ea	\$ 3,750.00	\$ 15,000	\$ -	\$ -	\$ 15,000
	Variable frequency drive - chillers	4	ls	\$ 3,750.00	\$ 15,000	\$ -	\$ -	\$ 15,000
	Subtotal							\$ 30,000
23 86 00	Electric motor controllers				w/23 55 00			
23 90 00	Cx for HVAC Systems				w/23 55 00			
26 00 00	ELECTRICAL							
26 02 70	Temporary Lighting and Power				w/26 02 80			
26 02 80	Equipment Connections and Coordination							



**Department of
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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Terminate conductors in 125 Amp circuit breakers	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Maintain existing cabling/conduit from controllers to power source	1	ls	\$ 600.00	\$ 600	\$ 1,800.00	\$ 1,800	\$ 2,400
	Trace all existing systems to confirm power sources	1	ls	\$ 240.00	\$ 240	\$ 4,500.00	\$ 4,500	\$ 4,740
	Relocate existing smoke detectors	1	ls	\$ 240.00	\$ 240	\$ 2,000.00	\$ 2,000	\$ 2,240
	Remove/reinstall existing lighting fixtures	1	ls	\$ 600.00	\$ 600	\$ 2,000.00	\$ 2,000	\$ 2,600
	Shutdown/switchover	1	ls	\$ 240.00	\$ 240	\$ 2,200.00	\$ 2,200	\$ 2,440
	Cutting/patching	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Testing	1	ls	\$ 240.00	\$ 240	\$ 1,000.00	\$ 1,000	\$ 1,240
	Remove and relocate existing smoke detectors		ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Final connections from controllers to new equipment							
	Make-up water pump (fract.)	1	ea	\$ 240.00	\$ 960	\$ 360.00	\$ 360	\$ 1,320
	Condenser water pump (30HP)	4	ea	\$ 240.00	\$ 960	\$ 1,000.00	\$ 4,000	\$ 4,960
	Chilled water pump (30HP)	4	ea	\$ 240.00	\$ 960	\$ 1,000.00	\$ 4,000	\$ 4,960
	Chiller	2	ea	\$ 1,500.00	\$ 3,000	\$ 4,500.00	\$ 9,000	\$ 12,000
	Purge exhaust fan	1	ea	\$ 240.00	\$ 240	\$ 360.00	\$ 360	\$ 600
	Temporary remove existing filtration system for new chiller installation	1	ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Disconnect power to chilled water pump	4	ea	\$ 120.00	\$ 480	\$ 480.00	\$ 1,920	\$ 2,400
	Disconnect power to compressor	1	ea	\$ 120.00	\$ 120	\$ 480.00	\$ 480	\$ 600
	Disconnect power to purge fan	1	ea	\$ 120.00	\$ 120	\$ 240.00	\$ 240	\$ 360
	Disconnect power to condenser water pump	4	ea	\$ 120.00	\$ 480	\$ 480.00	\$ 1,920	\$ 2,400
	Disconnect power to chiller	2	ea	\$ 120.00	\$ 240	\$ 480.00	\$ 960	\$ 1,200
	Remove lighting fixtures	5	ea	\$ 120.00	\$ 600	\$ 360.00	\$ 1,800	\$ 2,400
	Remove disconnect switches, wiring devices, etc.	1	ls	\$ 240.00	\$ 240	\$ 960.00	\$ 960	\$ 1,200
	Remove feeders							
	2 1/2" RGS	80	lf	\$ -	\$ -	\$ 12.00	\$ 960	\$ 960
	1 1/4" RGS	80	lf	\$ -	\$ -	\$ 6.00	\$ 480	\$ 480
	3/4" RGS	50	lf	\$ -	\$ -	\$ 3.00	\$ 150	\$ 150
	300 MCM	240	lf	\$ -	\$ -	\$ 2.00	\$ 480	\$ 480
	250 MCM	80	lf	\$ -	\$ -	\$ 2.00	\$ 160	\$ 160
	# 2 wire	240	lf	\$ -	\$ -	\$ 1.00	\$ 240	\$ 240
	# 6 wire	80	lf	\$ -	\$ -	\$ 1.00	\$ 80	\$ 80
	# 12 wire	150	lf	\$ -	\$ -	\$ 1.00	\$ 150	\$ 150



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DDC ID: PV274CHLL
 Sponsor Agency: Culturals

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Subtotal							\$ 55,160
26 05 19	600 Volt Wire and Cable							
	400 MCM	3,000	lf	\$ 11.00	\$ 33,000	\$ 9.00	\$ 27,000	\$ 60,000
	# 3/0 wire	1,000	lf	\$ 7.50	\$ 7,500	\$ 8.00	\$ 8,000	\$ 15,500
	# 10 wire	300	lf	\$ 1.50	\$ 450	\$ 2.50	\$ 7,500	\$ 7,950
	# 12 wire	1,200	lf	\$ 1.20	\$ 1,440	\$ 2.50	\$ 3,000	\$ 4,440
	Subtotal							\$ 87,890
26 05 33	Raceways and boxes							
	3" RGS	850	lf	\$ 30.00	\$ 25,500	\$ 175.00	\$ 148,750	\$ 174,250
	3/4" RGS	350	lf	\$ 4.20	\$ 1,470	\$ 60.00	\$ 21,000	\$ 22,470
	Subtotal							\$ 196,720
26 05 33	Identification for Electrical Systems				w/26 02 80			
	(included in 26 02 80)							
26 05 48	Vibration and Seismic Controls for Electrical Systems							
	Vibration isolation/seismic restraint		ls	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ -
26 24 16	Panel Boards				w/26 02 80			
26 27 26	Wiring Devices				w/26 02 80			
26 28 13	Fuses (600 V and Less)				w/26 28 16			
26 28 16	Disconnect Switches							
	1200 Amp fuses	6	ea	\$ 1,800.00	\$ 10,800	\$ 600.00	\$ 3,600	\$ 14,400
	200 Amp 3-pole fuse switch	1	ea	\$ 9,000.00	\$ 9,000	\$ 4,200.00	\$ 4,200	\$ 13,200
	125 Amp 3-pole circuit breaker		ea					\$ -
	15 Amp 3-pole circuit breaker	2	ea	\$ 60.00	\$ 120	\$ 960.00	\$ 1,920	\$ 2,040
	30 Amp NEMA 3R disconnect switch	2	ea	\$ 360.00	\$ 720	\$ 1,100.00	\$ 2,200	\$ 2,920
	30 Amp NEMA 3R motor starter/disconnect switch	1	ea	\$ 960.00	\$ 960	\$ 1,100.00	\$ 1,100	\$ 2,060



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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Remote shutdown control switch		ea	\$ -	\$ -	\$ -	\$ -	\$ -
	Toggle switch		ea	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal							\$ 34,620
26 29 13	Installation of Individual Motor Controllers							
	VFD (F.B.O.) - condenser water pumps	4	ea	\$ -	\$ -	\$ 1,500.00	\$ 6,000	\$ 6,000
	VFD (F.B.O.) - chilled water pumps	4	ea	\$ -	\$ -	\$ 1,500.00	\$ 6,000	\$ 6,000
	VFD (F.B.O.) - chiller	2	ea	\$ -	\$ -	\$ 1,500.00	\$ 3,000	\$ 3,000
	Subtotal							\$ 15,000
26 50 00	Luminaries and Accessories							
	2' x 4' lighting fixture	4	ea	\$ 480.00	\$ 1,920	\$ 870.00	\$ 3,480	\$ 5,400
	2' x 2' lighting fixture	1	ea	\$ 360.00	\$ 360	\$ 780.00	\$ 780	\$ 1,140
	Exit sign	1	ea	\$ 221.00	\$ 221	\$ 420.00	\$ 420	\$ 641
	Light switch w/pilot light	1	ea	\$ 60.00	\$ 60	\$ 240.00	\$ 240	\$ 300
	Subtotal							\$ 7,481
26 60 00	Cx for Electrical Systems			w/ 26 02 80				
	TOTAL CONTRACT 1 - GENERAL CONSTRUCTION WORK							\$ 2,120,254

**ATTACHMENT 1 – BID INFORMATION
PROJECT ID: PV274CHLL**

DESCRIPTION AND LOCATION OF WORK:

**Chiller Replacement and BMS Upgrade
47-01 111th Street
Queens, NY 11368
DDC PIN: 8502020PV0001C**

EPIN: 85020B0036

DOCUMENTS AVAILABLE AT:

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

SUBMISSION OF BIDS BEFORE BID OPENING:

TIME TO SUBMIT:

On or Before:	February 20, 2020
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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:

PLACE OF BID OPENING:	Department of Design and Construction, Contract Section
	30-30 Thomson Avenue - First Floor
	Long Island City, NY 11101
DATE AND HOUR:	February 20, 2020 @ 2:00 PM

LATE BIDS WILL NOT BE ACCEPTED

PRE-BID CONFERENCE:

PLACE:	NY Hall of Science - 47-01 111 Street, Corona, NY 11368
DATE AND HOUR:	February 5, 2020 @ 10:00 AM
MANDATORY OR OPTIONAL:	Optional

BID SECURITY:

Bid Security is required in the amount set forth below; provided, however, bid security is not required if the TOTAL BID PRICE set forth on the Bid Form is less than \$1,000,000.00.

- (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.

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: C.D.E. Air Conditioning Co., Inc.

DDC Project Number: PV274CHLL

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.

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

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
2019	0.910	N/A
2018	0.860	N/A
2017	0.850	N/A

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.

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

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2019		0
2018	41600	0
2017	39520	7.9

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: 02/25/20

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

Title: President

**C.D.E. AIR CONDITIONING CO., INC.
PARTIAL LIST OF COMPLETED PROJECTS**

PROJECT NAME AND LOCATION	PROJECT NUMBER	OWNER/CONTACT	TELEPHONE NO.	FINAL CONTRACT PRICE	COMPLETION DATE
Staten Island University Hospital (SIUH) UREA Make Ready	13-1707-18	EW Howell, Co. LLC Hans Laros	(516) 921-7100 (516) 390-8179	383,629	August, 2019
Hunts Point WPCP 1270 Ryawa Avenue, Bronx, NY	HP-237	Spectrasrv, Inc. John Kling	(973) 589-0277	22,900	June, 2019
Baruch College HVAC & Controls Upgrade	3048509999	Genesys Engineering, P.C. Charles Klee Christopher Hollister	(914) 633-6490 (631) 974-5171 (914) 712-5840	8,831,090	February, 2019
Staten Island Armory Provide Energy Efficient Retrofit	45441H	Office of General Services (OGS) Tajudeen Aleya, Building CPM	(646) 296-2132	788,621	February, 2019
SUNY College of Optometry 33 West 42nd Street, NY NY	41056-02	State University Construction Fund (SUCF) Simon Stein, RA	(518) 320-3230 (518) 729-6248	5,461,466	February, 2019
Brooklyn Central Library OneNYC Energy Retrofit	20151429177	NYC DDC Rajiv Bhagat	(718) 391-1132 (347) 203-1755	5,914,313	January, 2019
South West Brooklyn Marine Transfer Station 1824 Shore Parkway, Brooklyn NY	20141418737	Prismatic Develop/NYC DDC Mike Peritone, Prismatic	(973) 882-1133 X266 (973) 776-4680	8,663,567	January, 2019
Christopher Street Substation - PATH Replacement and Upgrade HVAC Work	PAT-624.154	Mass Electric Construction Co. Ricky Kahy	(201) 930-4930	1,088,579	December, 2018
26th Ward Water Pollution Control Plant	Project No. WP-205 Contract 26W-12H	NYC Dept. of Environ. Protection Joanna Heim	(718) 647-6510	12,927,364	December, 2018
SCA Headquarters - Data Center 3030 Thomson Avenue, LIC NY 11101	C000013304	Iannelli Construction Vincent Iannelli	(718) 836-2000	1,224,482	November, 2018
Susan Wagner High School - Black Box Theater	C000013573	Vertex Companies, Inc. Andrew Sargent	(646) 553-3500	4,274,313	November, 2018
PS 195 (Queens) Flood Elimination/Heating Plant Upgrade	C000013531	NYC SCA Muhammad Akbar	(917) 416-2608	6,632,268	October, 2018
PS 360 (Bronx) HVAC Replacement & New Roof	C000013495	NYC SCA Muhammad F. Sharif	(646) 879-1762	3,271,253	September, 2018
Asser Levy Bathhouse Boiler Reconstruction Asser Levy Place, NY NY	M64-213M	NYC Dept. of Parks & Recreation Vladimir Biba	(718) 760-6767 Cell: (646) 879-6572	1,347,730	May, 2018
CUNY Data Center AC-8 Replacement	CITYW-CUCF-01-09- 07-GC-1	EPIC Management Dennis Haggerty	(845) 521-1022	381,180.00	March, 2018
23rd Precinct Station House Installation of New Cooling Towers	20171406505	NYPD Stephen Sailer	(347) 245-8365	311,301	November, 2017
District 7 Sanitation Garage HVAC System Replacement	20151429101	NYC DDC Jernaine Francis	(718) 391-1342 (347) 401-4987	3,704,688	September, 2017

**C.D.E. AIR CONDITIONING CO., INC.
PARTIAL LIST OF COMPLETED PROJECTS**

Governor's Island Facilities Management Building 110	90088	The Liro Group Nadia Usmani	(516) 434-9721	1,662,254	March, 2017
NYC College of Technology - NYCCT Boiler Plant Repairs	ES-GSN080S	The Liro Group/Ecosystem Marco Barbosa	(516) 214-8472 (347) 901-0278	1,391,706	January, 2017
Pre-K 66 (Staten Island)	C000013711	Arnell Construction Alvin Rodriguez	(718) 852-8500	4,012,000	January, 2017
1625 Forest Avenue, Staten Island, NY		Hazen & Sawyer/NYC DEP Eamon Kelly	(845) 642-4335	28,719,670	June, 2016
Bowery Bay WPCP 4301 Berrian Boulevard, Astoria, New York	Project# WP-237 Contract BB-57H	Spectraserv - CDM/NYPA John Kling	(973) 589-0277	2,083,679	April 2016
Bowery Bay WPCP Anaerobic Digester Gas System Improvements 4301 Berrian Boulevard, Astoria, New York	Project# WP-237 Contract BB-210	Parson Brinckerhoff Frank Verrri, RA	(212) 423-7881 (917) 658-4811	1,605,768	April 2016
Metropolitan Hospital Center Energy Conservation HVAC Work	ES-GSN-0543	NYC Dept. of Parks & Recreation Vladimir Biba	(718) 760-6767 Call: (646) 879-6572	879,676	March, 2016
Dapollito Recreation & John Jay Pool Reconstruction of Boilers	MG-113	NYC Dept. of Parks & Recreation Spectraserv - CDM/NYPA John Kling	(718) 760-6767 (973) 589-0277	3,796,308	March, 2016
DEP Digester Gas System Improvement Various Locations - Oakwood Beach, Staten Island 26th Ward & Red Hook, Brooklyn, New York	ES-GSN-0149	Eranello Construction Steven Cianci	(631) 414-7171	2,392,110	February, 2016
New York Psychiatric Institute Conversion of 4th Floor to Wet Lab	44220-C	Delric Construction Robert Ricciardi	(973) 427-0058	691,345	February, 2016
PS 199 (Queens) Annex at St. Teresa 55-15 44th Street, Sunnyside, NY	C000013478	Skanska USA Building Bryan Kobb Sam Alacha Cell:	(917) 367-2246 (917) 444-0573 (212) 963-2477 (646) 208-1552	9,169,198	February, 2016
United Nations Package 3 - Airside Capital Master Plan	Contract B Package 3	NYC DDC Rebecca Clough	(718) 391-1127	1,518,657	December, 2015
120 Schermerhorn Street, Brooklyn, NY Boiler Feedwater System Replacement	Project No. C0281BOIL	Sea Crest Construction Corp. James Dergin	(516) 868-3000 Call: (516) 903-6619	347,000	July, 2015
Manhattan Psychiatric Center Wards Island Manhattan Forensic Relocation Package No. 1	44579	NYC DDC Charles Lin	(718) 391-1138 (917) 506-0551	790,199	April, 2015
Manhattan Theater Club Renovation at Friedman Theater PS 181 (K) 1023 York Avenue, Brooklyn NY	PV256-FRI C000013191	Triangle General Contractors Anant Ntraula	(718) 462-2608	19,641	April, 2015
Kingsbridge Heights Community Center Construction of HVAC System	Contract No. X250-109MA1	NYC Dept. of Parks & Recreation Fred Hammerling	(718) 760-6643	880,721.00	January, 2015
Manhattan Pumping Station Newtown Creek WPCP	Project # WP-283 Contract NC-40H	Hazen & Sawyer/NYC DEP Alex Klar, P.E.	(718) 609-8701	12,623,793	January, 2015

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

CONSTRUCTION EMPLOYMENT REPORT

GENERAL INFORMATION

1. Your contractual relationship in this contract is: Prime contractor Subcontractor
- 1a. Are M/WBE goals attached to this project? Yes No
2. Please check one of the following if your firm would like information on how to certify with the City of New York as a:
- Minority Owned Business Enterprise Locally Based Business Enterprise
 Women Owned Business Enterprise Emerging Business Enterprise
 Disadvantaged Business Enterprise
- 2a. If you are certified as an **MBE, WBE, LBE, EBE** or **DBE**, what city/state agency are you certified with? _____ Are you DBE certified? Yes No
3. Please indicate if you would like assistance from SBS in identifying certified M/WBEs for contracting opportunities: Yes No
4. Is this project subject to a project labor agreement? Yes No
5. Are you a Union contractor? Yes No If yes, please list which local(s) you affiliated with Local Union 638 and 638B Steamfitters
6. Are you a Veteran owned company? Yes No

PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION

7. 11-2217107 josepha@cdeair.com
Employer Identification Number or Federal Tax I.D. Email Address
8. C.D.E. Air Conditioning Co., Inc.
Company Name
9. 321 39th Street, Brooklyn, New York 11232
Company Address and Zip Code
10. Joseph F. Azara 718-788-1040
Chief Operating Officer Telephone Number
11. Same 718-788-1040
Designated Equal Opportunity Compliance Officer Telephone Number
(If same as Item #10, write "same")
12. Same.
Name of Prime Contractor and Contact Person
(If same as Item #8, write "same")



careers
businesses
neighborhoods

Gregg Bishop
Commissioner

RECEIVED

JAN 14 2020

City
of Conditioning Co

219CY506

January 15, 2020

Mr. Mitchell Merdinger, VP
C.D.E. Air Conditioning Co., Inc.
321 39th Street
Brooklyn, NY 11232

Re: Department of Environmental Protection Contract; Pin No. 82619WPC1232;
Reconstruction of existing chiller system located at the Jamaica
Wastewater Treatment Plant; Borough of Queens; Contract Value:
\$1,736,037; **Continued Certificate of Approval**

Dear Mr. Merdinger:

Please be advised that C.D.E. Air Conditioning Co., Inc. has already received notice of its approval status for the three (3) year period indicated in the Department of Small Business Services/Division of Labor Services' (DLS) Certificate of Approval letter effective May 3, 2017 for file number 217CY194.

As your organization continues to meet the equal employment opportunity requirements of the City of New York, DLS approves the awarding of the above-referenced contract. This approval does not extend the initial 3-year approval (**May 3, 2017 to May 2, 2020**) referred to above.

Very truly yours,

Helen Wilson
Assistant Commissioner
Division of Labor Services

c: Lisa Middleton
Vanessa Soto
FILE

13. Number of employees in your company: 18

14. Contract information:

(a) NYC Dept. of Design and Constr. (b) \$2,608,754.00
Contracting Agency (City Agency) Contract Amount

(c) 8502020PV0001C (d) _____
Procurement Identification Number (PIN) Contract Registration Number (CT#)

(e) _____ (f) 540 CCDs
Projected Commencement Date Projected Completion Date

(g) Description and location of proposed contract:

New York Hall of Science, Chiller Replacement and BMS Upgrade

47-01 111th Street, Corona, Queens, New York 11368

Contract No. 1 - HVAC Work

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

If yes, attach a copy of certificate. **(Certificate attached)**

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

If yes, attach a copy of certificate.

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

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

Yes ___ No X If yes,

Date submitted: _____

Agency to which submitted: _____

Name of Agency Person: _____

Contract No: _____

Telephone: _____

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

If yes,

(a) Name and address of OFCCP office.

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

If yes, attach a copy of such certificate.

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

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

(d) Were any deficiencies found? Yes___ No___

If yes, attach a copy of such findings.

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

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

PART II: DOCUMENTS REQUIRED

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

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

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

- | | |
|--|---|
| (a) Prior to job offer | Yes___ No___ |
| (b) After a conditional job offer | Yes___ No___ |
| (c) After a job offer | Yes <input checked="" type="checkbox"/> No___ |
| (d) Within the first three days on the job | Yes___ No___ |
| (e) To some applicants | Yes___ No___ |
| (f) To all applicants | Yes <input checked="" type="checkbox"/> No___ |
| (g) To some employees | Yes___ No___ |
| (h) To all employees | Yes___ No___ |

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

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

If yes, is the medical examination given:

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

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

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

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

On file, at our office.

Equal employment policy (2 Pages)

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

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

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

If yes, please attach a copy of this policy.

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

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

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

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

If yes, attach a log. See instructions.

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

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).
Steamfitters, A/C Mechanics, Laborers. Employee must be physically
able to perform labor related tasks of the position.

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

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

SIGNATURE PAGE

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

C.D.E. Air Conditioning Co., Inc.
Contractor's Name

Joseph F. Azara President

Name of person who prepared this Employment Report Title

Joseph F. Azara President

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

718-788-1040
Telephone Number

 February 28, 2020
Signature of authorized official Date

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


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

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

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

Only original signatures accepted.

Sworn to before me this 28th day of Feb. 2020

 2/28/20
Notary Public Authorized Signature Date
ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

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

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

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

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

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

OWNERSHIP CODES

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

FORM B: PROJECTED WORKFORCE

TRADE CLASSIFICATION CODES

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

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

Trade:
Steamfitters

Union Affiliation, if applicable
Local Union 638

Total (Col. #1-10):
3

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

Total Female
(Col. #6 – 10):
0

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

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

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

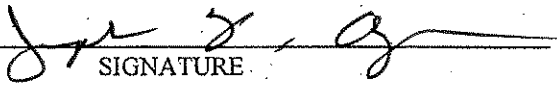
Pursuant to General Municipal Law Section 103-g, which generally prohibits the City from entering into contracts with persons engaged in investment activities in the energy sector of Iran, the bidder/proposer submits the following certification:

[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.




SIGNATURE

Joseph F. Azara
PRINTED NAME

President

TITLE

Sworn to before me this
25th day of Feb. 2020



Notary Public

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

Dated: February 25, 2020

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

February 14, 2020

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV274CHLL

CHILLER REPLACEMENT AND BMS UPGRADE


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. **Bidders Questions and Responses to Questions:**
See Attachment A.
2. **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, by email at CSB_projectinquiries@ddc.nyc.gov or by fax at (718) 391-2627.

FOR 

Thomas Foley
Deputy Commissioner
Public Buildings/Civic Structures

C.R.E. AIR CONDITIONING CO., INC.

Name of Bidder

By: 

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

February 21, 2020

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV274CHLL

CHILLER REPLACEMENT AND BMS UPGRADE

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


1. **The Bid Opening for the contract described below scheduled for February 20, 2020, at 2:00 pm is rescheduled to February 25, 2020 at 2:00 pm.**

Contract #1 – HVAC WORK

2. **Bidders Questions and Responses to Questions:**
See Attachment A.

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

If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-1041, by email at CSB_projectinquiries@ddc.nyc.gov or by fax at (718) 391-2627.



Thomas Foley
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DEPARTMENT OF DESIGN AND CONSTRUCTION
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February 14, 2020

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FOR 

Thomas Foley
Deputy Commissioner
Public Buildings/Civic Structures

Name of Bidder

By: _____

DDC PROJECT #: PV274CHLL

PROJECT NAME: Chiller Replacement and BMS Upgrade

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	Please provide Bid Breakdown form in excel.	Attached to this addendum.
2	There is a specification on Flex Connectors 230548-9 yet pump detail calls for spool pieces and there are no Flex's shown in any other location. Please confirm Flex' are not required.	Confirmed, flex connectors are not required but included in the specification as an option.
3	There is a specification for Suction diffusers 232600-4 yet none are shown we assume they are not required please confirm.	See detail 9 on M-600, pump is split case type and does not require suction diffusers. Strainer is required, as per detail.
4	Please advise what the completion time is and what the liquidated damages are for this project?	That information is in the Addendum to General Conditions.
5	Drawing M800 calls to replace Dampers and Actuators at existing Air Handling Units please provide sizes of Dampers as well as drawing showing location of the dampers.	Contractor to verify in field.
6	Drawing M500 has New and Demolition piping Flow Diagrams please be advised there are significant discrepancies in pipe sizes that require clarification, please update the flow diagrams accordingly.	Per DDC General Conditions, the more stringent requirement must be the basis of the bid / implemented, i.e. the larger pipe size in this case.
7	Please provide the work hours for any hot work (welding, demolition).	07:00 to 17:00
8	Please provide the work hours for rigging (as rigging path runs thru Exhibition Space)	07:00 to 09:30AM
9	Please provide the work hours for work in corridor outside Mechanical Room & before Exhibition Space.	07:00 to 17:00
10	Please provide the work hours for inside Mechanical Room	07:00 to 17:00
11	Please advise if the house will be relocating the lockers.	Yes
12	Please advise on Type of Refrigerant in Existing Chillers.	R-22
13	Is there an existing water treatment system?	Yes
14	Is existing water treatment system to remain?	No

PV274CHLL

15	Will contractor be providing a new Chilled Water treatment System and Condenser Water Treatment System.	Yes, a new chemical treatment system is called for on the contract documents to serve the chilled water system as well as a new makeup pump (which shall also act as a chemical treatment gateway). An updated chemical treatment system shall also be provided on the condenser water system as indicated on the contract documents. Contractor shall review all applicable contract drawings and specifications.
16	Is there an existing service contract? If so, please provide Vendor.	Nalco Water. 800.288.0879
17	Schedule F has a line item "264113 Lightning Protection" but drawings & spec section are not included in the bid documents. Is it required on the project?	There is no Lightning Protection scope on the contract drawings or specs. Line item 26 41 13 Lightning Protection is not required.

DDC PROJECT #: PV274CHLL

PROJECT NAME: Chiller Replacement and BMS Upgrade

ATTACHMENT B – REVISIONS TO THE BID BOOKLET:

1. Volume 1 - Part B included in this addendum.
2. Excel Bid Breakdown included with this addendum.
3. Notice to Bidders revised included with this addendum.

NOTICE TO BIDDERS

Please be advised the Project Labor Agreement (PLA) attached and incorporated in this Invitation for Bids has been extended to apply to contracts let prior to February 29, 2020, including this contract. Other than extending the expiration date, all other terms of the PLA continue to apply in full force and effect.

**BID BOOKLET
PART B**

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: _____

DDC Project Number: _____

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

Company has previously worked for DDC: YES NO

2. Type(s) of Construction Work:

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.

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

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
_____	_____	_____
_____	_____	_____
_____	_____	_____

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.

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

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

If the 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: _____

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

Title: _____

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

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

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

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

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

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

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

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.

SIGNATURE

PRINTED NAME

TITLE

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

Notary Public

Dated:

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

February 21, 2020

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV274CHLL

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1. **The Bid Opening for the contract described below scheduled for February 20, 2020, at 2:00 pm is rescheduled to February 25, 2020 at 2:00 pm.**

Contract #1 – HVAC WORK

2. **Bidders Questions and Responses to Questions:**
See Attachment A.

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

If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-1041, by email at CSB_projectinquiries@ddc.nyc.gov or by fax at (718) 391-2627.



Thomas Foley
Deputy Commissioner
Public Buildings/Civic Structures

Name of Bidder

By: _____

DDC PROJECT #: PV274CHLL

PROJECT NAME: Chiller Replacement and BMS Upgrade

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	<p>Addendum to General Conditions page 5 of 26 states that an administration/locker room portion of building must be operational from 4:00AM thru 2:00PM. Part of this area is to be demolished and will need to remain so for longer than 24 hours. Please clarify if this note refers to areas beyond the demolition or if it is meant to imply that the demolition of this area must take place outside of these hours and it is understood that the area is to be demolished and will be for over 24 hours.</p>	<p>As per Addendum to the General Conditions, provision for temporary protection and construction of the Administration/Locker room portion is from 3PM-12AM.</p> <p>As per the addendum issued on 02/13/2020 work hours for work in corridor outside Mechanical Room and before the exhibition space can occur between the hours of 07:00AM – 17:00PM.</p> <p>It is understood that walls will remain demolished until such time that all equipment to be installed in Mechanical room is inside the Mechanical room. Once all equipment to be installed in Mechanical room is inside Mechanical room and no other equipment will be taken out of Mechanical room, Contractor will construct walls as per the construction documents within the provisions of the Addendum to the General Conditions.</p>
2	<p>DWG. M-800 Please provide the sizes of all dampers and control valves to be replaced. Please advise if dampers are located within or external to the units. It was not possible to visually inspect these during walk thru and the diagrams do not locate the dampers as to whether they are in the unit or external in the ductwork. All new damper sizes should be dimensioned for bidding purposes.</p>	<p>See Addendum 1, question 5. Damper sizes could not be provided. Contractor is to field verify.</p>
3	<p>The only area with stated limited work hours is the administration locker room area. Please confirm that all other areas requiring access for the work, including rigging are available to be used during all hours provided notification is given. If not please clarify areas and limitations of use.</p>	<p>As per Addendum 1 issued on 02/14/20. Rigging path that runs through exhibition space shall be from the hours of 07:00AM to 09:30AM.</p>
4	<p>Please confirm that all items included within the scope of the BMS specification 230923 (Building Management and Control System) are to be covered by the \$53,500.00 line-item allowance. If there are items within this spec which are not covered under the allowance, please clearly state what they are.</p>	<p>No, the proprietary allowance is for material only. Labor shall be considered non-proprietary and separate in the bid breakdown. This is a DDC requirement, please review DDC Bid Requirements.</p>
5	<p>If allowance for BMS work is included on the proprietary allowance line of the bid form why are there line items within the bid breakdown to be completed for BMS?</p>	<p>See response to #4. In addition to the proprietary material allowance, contractor must provide separate labor cost on bid breakdown sheet.</p>

PV274CHLL

6	Please provide a scope proposal from the proprietary chiller manufacturer or confirm that all items described as provided by the chiller manufacturer within specification 235500 (Refrigeration Machines) will be paid by the allowance provided.	Scope proposal is the sole responsibility of the contractor. Section 235500 (Refrigeration Machines) is the subject of this proprietary allowance. All equipment and devices within Section 235500 are included in the allowance. Contractor to review drawings for all requirements.
7	Dwg. A-101 please indicate limits of area where concrete repair is to be performed. Is this on the existing to remain pad only?	Please see Concrete Pad Removal Note #1 on drawing DM-101. The said note refers to detail 3/A-101.
8	Bid breakdown - why are dampers material cost assigned to item 23 11 13 (Sheetmetal ductwork) in the bid breakdown when the specification calls for them to be provided by the BMS sub-contractor? Please clarify.	This is a one Contractor contract, so it is not critical what party the dampers are provided by. This is how the design team split up the pricing scope. Contractor to allocate bid breakdown in this manner to match DDC Bid Breakdown sheet
9	Bid breakdown - why is the VFD for the chiller given a line item if it is to be provided by the proprietary chiller manufacturer? Please clarify.	VFD is not proprietary.
10	Who is the current fire alarm system vendor at the Museum?	DavEd Fire Systems, Inc. Contact: 201.342.7800
11	What is the capacity of the freight elevator?	15,000 LBS
12	Per Vol. 3 Addendum to the General Conditions Sec. 6 Schedules, temporary heat applies to this contract. Please provide type of temporary heat required.	Temporary Heat is not required.

FMS ID: PV274CHLL



Department of
Design and
Construction

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

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

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

CONTRACT NO. 1 HVAC WORK

Chiller Replacement and BMS Upgrade

LOCATION: 47-01 111th Street
BOROUGH: Queens, 11368
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: PV274CHLL

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

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

VOLUME 2 OF 3

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

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

Chiller Replacement and BMS Upgrade

LOCATION: 47-01 111th Street
BOROUGH: Queens, 11368
CITY OF NEW YORK

CONTRACT NO. 1 HVAC WORK

Department of Cultural Affairs

WSP Engineers

Date: November 15, 2019



20-029



Department of
Design and
Construction

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

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

VOLUME 2 OF 3

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

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



20-029

NOTICE TO BIDDERS

Please be advised the Project Labor Agreement (PLA) attached and incorporated in this Invitation for Bids has been extended to apply to contracts let prior to December 31, 2019, including this contract. Other than extending the expiration date, all other terms of the PLA continue to apply in full force and effect.

2015 Project Labor Agreement

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

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

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

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

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

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

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

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

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

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

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

1. **Q.** Does a Contractor need to be signatory with the unions in the NYC Building and Construction Trades Council in order to bid on projects under the PLA?
A. No, any contractor may bid by signing and agreeing to the terms of the PLA. The contractor need not be signatory with these unions by any other labor agreement or for any other project.
2. **Q.** Does a Contractor agreeing to the PLA and signing the Letter of Assent create a labor agreement with these unions outside of the project covered by the PLA?
A. No, the PLA applies only to those projects that the Contractor agrees to perform under the PLA and makes no labor agreement beyond those projects.
3. **Q.** Do the provisions of the PLA apply equally to subcontractors as well as contractors and how does the PLA affect the subcontractors that a bidder may utilize on the project?
A. Yes, the PLA applies to subcontractors and all subcontractors must agree to become party to the PLA. See PLA Art. 2, Sec. 8. Subject to the Department's approval of subcontractors pursuant to Article 17 of the Standard Construction Contract, a Contractor may use any subcontractor, union or non-union, as long as the subcontractor signs and agrees to the terms of the PLA.
4. **Q.** Are bidders required to submit Letters of Assent signed by proposed subcontractors with their bid in order to be found responsive?
A. No, bidders do not have to submit signed Letters of Assent from their subcontractors with their bid. Subcontractors, however, will be required to sign the Letter of Assent prior to being approved by the Department.
5. **Q.** May a Contractor or subcontractor use any of its existing employees to perform this work?
A. Generally labor will be referred to the Contractor from the respective signatory local unions. See PLA Article 4. However, Contractors and subcontractors may continue to use up to 12% of their existing, qualifying labor force for this work, in accordance with the terms of PLA Article 4, Section 2B. Certified M/WBEs for which participation goals are set pursuant to NYC Administrative Code §6-129 that are not signatory to any Schedule A CBAs may use their existing employees for the 2nd, 4th, 6th and 8th employee needed on the job if their contracts are valued at or under \$500,000. For contracts valued at above \$500,000 but under \$1,000,000, such certified M/WBEs may use their own employees for the 2nd, 5th and 8th employees needed on the job in accordance with the provisions of PLA Article 4, Section 2C. If additional workers are needed by these M/WBEs, the additional workers will be referred to the Contractor from the signatory local unions subject to the Contractor's right to meet 12% of the additional needs with its existing, qualifying employees.
6. **Q.** Must the City set M/WBE participation goals for the particular project or contract in order for a certified M/WBE to utilize the provisions of PLA Article 4, Section 2C?
A. No. PLA Article 4, Section 2(C) specifies what categories of M/WBEs are eligible to take advantage of this provision (i.e., those M/WBEs for which the City is

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- A. Yes. Managers are not subject to the provisions of the PLA, so there is no restriction on management and/or other non-trade personnel, as long as such personnel do not perform trade functions. See Article 3, Section 1.
16. Q. Does the PLA provide a standard work day across all the signatory trades?
A. Yes, all signatory trades will work an eight (8) hour day, Monday through Friday with a day shift at straight time as the standard work week. The PLA also permits a Contractor to schedule a four day (within Monday through Friday) work week, ten (10) hours per day at straight time if announced at the commencement of the project. See PLA Article 12, Section 1. This is an example where the terms of the PLA override provisions of the Standard Construction Contract (compare with section 37.2 of the Standard Construction Contract). The standard work week may be reduced to 35 or 37 ½ hours of work in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.
17. Q. Does the PLA create a common holiday schedule for all the signatory trades?
A. Yes, the PLA recognizes nine (9) common holidays, including Veterans Day. See PLA Article 12, Section 4.
18. Q. Does the PLA provide for a standard policy for 'shift work' across all signatory trades?
A. Yes, second and third shifts may be worked with a standard 5% premium pay. In addition, a day shift does not have to be scheduled in order to work the second and third shifts at the 1.05 hourly pay rate. See PLA Article 12, Section 3.
19. Q. May the Contractor schedule overtime work, including work on a weekend?
A. Yes, the PLA permits the Contractor to schedule overtime work, including work on weekends. See PLA Article 12, Sections 2, 3, and 5. To the extent that the Agency's approval is required before a Contractor may schedule or be paid for overtime, that approval is still required notwithstanding the PLA language.
20. Q. Are overtime payments affected by the PLA?
A. Yes, all overtime pay incurred Monday through Saturday will be at time and one half (1 ½). There will be no stacking or pyramiding of overtime pay under any circumstances. See PLA Article 12, Section 2. Sunday and holiday overtime will be paid according to each trade's CBA.
21. Q. Are there special provisions for Saturday work when a day is 'lost' during the week due to weather, power failure or other emergency?
A. Yes, when this occurs the Contractor may schedule Saturday work at weekday rates. See PLA Article 12, Section 5.
22. Q. Does the PLA contain special provisions for the manning of Temporary Services?

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

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

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

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

NYC Project Labor Agreements

CONTACT INFORMATION FOR LOCAL UNIONS (Updated May 2016)

BOILER MAKERS LOCAL NO. 5

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

BLASTERS, DRILLRUNNERS & MINERS LOCAL NO. 29

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

BRICKLAYERS LOCAL NO. 1

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

CARPENTERS DISTRICT COUNCIL

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

CEMENT MASONS NO. 780

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

CONCRETE WORKERS DISTRICT COUNCIL NO. 16

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

DERRICKMEN & RIGGERS LOCAL 197

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

DRYWALL TAPERS 1974

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

ELECTRICAL LOCAL NO. 3

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

ELEVATOR CONSTRUCTORS NO. 1

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

ENGINEERS LOCAL NO. 14

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

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

44-40 11th Street
Long Island City, NY 11101
Phone: (212) 929-5327
Business Manager: Tom Callahan

ENGINEERS NO. 30

16-16 Whitestone Expressway

Whitestone, NY 11357

Phone: (718) 847-8484

Fax: (718) 850-0524

Business Manager: William Lynn

ENGINEERS No. 94

331-337 West 44th Street

New York, NY 10036

Phone: (212) 245-7040

Fax: (212) 245-7886

Business Manager: Kuba Brown

kubabrown@local94.com

GLAZIERS NO. 1087

45 West 14th Street

New York, NY 10011

Phone: (212) 924-5200

Fax: (212) 255-1151

Business Manager: Steve Birmingham

**HEAT & FROST INSULATORS
AND ALLIED WORKERS**

LOCAL UNION NO. 12

35-53 24th Street

Long Island City, NY 11101

Phone: (718) 784-3456

Fax: (718) 784-8357

Business Manager: Matty Aracich

matty@insulatorslocal12.com

HEAT & FROST INSULATORS

LOCAL UNION NO. 12A

1536 127th Street

College Point, NY 11356

Phone: (718) 886-7226

Business Manager: Jaime Soto

IRON WORKERS DISTRICT COUNCIL

22 West 46th Street

New York, NY 10036

Phone: (212) 302-1868

Business Manager: James Mahoney

jmahoney@iwintl.org

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

451 Park Avenue South

New York, NY 10016

Phone: (212) 889-1320

Fax: (212) 779-3267

Business Manager: Bob Walsh

IRON WORKERS NO. 361 (Brooklyn & Queens)

89-19 97th Avenue

Ozone Park, NY 11416

Phone: (718) 322-1016/17

Fax: (718) 322-1053

Business Manager: Matthew Chartrand

LABORERS LOCAL NO. 78

ASBESTOS & LEAD ABATEMENT

30 Cliff Street

New York, New York 10038

Phone: (212) 227-4803

Fax: (212) 406-1800

Business Manager: Edison Severino

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

520 8th Avenue

New York, NY 10018

Phone: (212) 465-7900

Fax: (212) 465-7903

Business Manager: Michael Prohaska

LABORERS NO. 731

34-11 35th Avenue

Astoria, NY 11106

(718) 706-0720

Business Manager: Joseph D'Amato

LATHERS METAL

LOCAL NO. 46

1322 Third Avenue

New York, NY 10021

Phone: (212) 737-0500

Fax: (212) 249-1226

Business Manager: Terrance Moore

MASON TENDERS DIST. COUNCIL

520 8th Avenue
New York, NY 10018
Phone: (212) 452-9400
Fax: (212) 452-9499
Business Manager: Robert Bonanza

METAL POLISHERS

LOCAL UNION NO. 8A-28A

36-18 33rd Street 2nd Fl.
Long Island City, NY 11106
Phone: (718) 361-1770
Fax: (718) 361-1934
Business Manager: Hector Lopez

MILLWRIGHT AND MACHINERY

ERECTORS LOCAL NO. 740

89-07 Atlantic Avenue
Woodhaven, NY 11412
Phone: (718) 849-3636
Fax: (718) 849-0070
Business Manager: Joseph Geiger

ORNAMENTAL IRON WORKERS

NO. 580

501 West 42nd Street
New York, NY 10036
Phone: (212) 594-1662
Fax: (212) 564-2748
Business Manager: Pete Myers

PAINTERS DISTRICT

COUNCIL NO. 9

45 West 14th Street
New York, NY 10011
Phone: (212) 255-2950
Fax: (212) 255-1151
Business Manager: Joseph Azzopardi

PAINTERS STRUCTURAL STEEL

NO. 806

40 West 27th Street
New York, New York 10001
Phone: (212) 447-1838/0149
Fax: (212) 545-8386
Business Manager: Angelo Serse

PAVERS & ROAD BUILDERS

DISTRICT COUNCIL NO. 1

136-25 37th Avenue, Suite 502

Flushing, NY 11354

Phone: (718) 886-3310

Business Manager: Keith Lozcalzo

PLASTERS LOCAL UNION NO. 262

2241 Conner Street

Bronx, NY 10466

Phone: (718) 547-5440

Fax: (718) 547-5435

Business Manager: Michael Hubler

PLUMBERS NO. 1

158-29 Cross Bay Boulevard

Howard Beach, NY 11414

Phone: (718) 738-7500

Fax: (718) 835-0896

Business Manager: John Murphy

PRIVATE SANITATION

LOCAL NO. 813

45-18 Court Square, Suite 600

Long Island City, NY 11101

Phone: (718) 937-7010 ext. 244

Fax: (718) 937-7003

Business Manager: Sean Campbell

ROOFERS & WATERPROOFERS NO. 8

12-11 43rd Avenue

Long Island City, NY 11101

Phone: (718) 361-1169

Fax (718) 361-8330

Business Manager: Nick Siciliano

SHEET METAL WORKERS

LOCAL NO. 28

MANHATTAN OFFICE

500 Greenwich Street

New York, NY 10013

Phone: (212) 941-7700

Fax: (212) 226-0304

Business Manager: Kevin Connors

SHEET METAL WORKERS

LOCAL 137

21-42 44th Drive

Long Island City, NY 11101

Phone: (718) 937-4514

Fax: (718) 937-4113

Business Manager: Dante Dano

STEAMFITTERS LOCAL UNION

NO. 638

32-32 48th Avenue

Long Island City, NY 11101

Phone: (718) 392-3420

Fax: (718) 784-7285

Business Manager: Bob Bartels

TEAMSTERS LOCAL UNION 282

2500 Marcus Avenue

Lake Success, NY 11042

Phone: (516) 488-2822

Fax: (516) 488-4895

Business Manager: Tom Gesauldi

TEAMSTERS LOCAL UNION 814

21-42 44th Drive

Long Island City, NY 11101

Phone: (718) 609-6407

Fax: (718) 361-9610

Business Manager: Jason Ide

TILE, MARBLE & TERRAZO B.A.C.

LOCAL UNION 7

45-34 Court Square

Long Island City, NY 11101

Phone: (718) 786-7648

Fax: (718) 472-2370

Business Manager: Tom Lane

TIMBERMEN & DOCKBUILDERS LOCAL 1556

395 Hudson Street

New York, NY 10014

Phone: (212) 242-1320

Business Manager: Joseph Geiger

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

PROJECT LABOR AGREEMENT

COVERING SPECIFIED

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

2015 - 2018

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

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

ARTICLE 1 - PREAMBLE

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

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

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

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

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

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

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

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

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

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

NOW, THEREFORE, the Parties enter into this Agreement:

SECTION 1. PARTIES TO THE AGREEMENT

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

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ARTICLE 2 - GENERAL CONDITIONS

SECTION 1. DEFINITIONS

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

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SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

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

SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

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

SECTION 4. SUPREMACY CLAUSE

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

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

SECTION 5. LIABILITY

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

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

SECTION 6. THE AGENCY

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

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

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

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SECTION 8. SUBCONTRACTING

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

ARTICLE 3-SCOPE OF THE AGREEMENT

SECTION 1. WORK COVERED

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

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

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

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Orders; and

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

SECTION 2. TIME LIMITATIONS

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

SECTION 3. EXCLUDED EMPLOYEES

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

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

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

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

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

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

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

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

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

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

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

SECTION 4. NON-APPLICATION TO CERTAIN ENTITIES

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

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

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ARTICLE 4- UNION RECOGNITION AND EMPLOYMENT

SECTION 1. PRE-HIRE RECOGNITION

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

SECTION 2. UNION REFERRAL

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

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

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

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

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

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

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

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

SECTION 3. NON-DISCRIMINATION IN REFERRALS

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

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

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

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

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

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

SECTION 5. CROSS AND QUALIFIED REFERRALS

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

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

SECTION 6. UNION DUES

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

SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS

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

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SECTION 8. ON CALL REPAIR REFERRALS

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

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

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

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

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

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

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

ARTICLE 5- UNION REPRESENTATION

SECTION 1. LOCAL UNION REPRESENTATIVE

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

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SECTION 2. STEWARDS

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

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

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

SECTION 3. LAYOFF OF A STEWARD

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

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

ARTICLE 6- MANAGEMENT'S RIGHTS

SECTION 1. RESERVATION OF RIGHTS

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

SECTION 2. MATERIALS, METHODS & EQUIPMENT

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

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

ARTICLE 7- WORK STOPPAGES AND LOCKOUTS

SECTION 1. NO STRIKES-NO LOCK OUT

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

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

SECTION 2. DISCHARGE FOR VIOLATION

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

SECTION 3. NOTIFICATION

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

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

SECTION 4. EXPEDITED ARBITRATION

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

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

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

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

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

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

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

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

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

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H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

SECTION 1. SUBJECTS

The Program Labor Management Committee will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interests; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review efforts to meet applicable participation goals for MWBEs and workforce participation goals for minority and female employees.

SECTION 2. COMPOSITION

The Committee shall be jointly chaired by a designee of the Agency and the President of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The parties may mutually designate an

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MWBE representative to participate in appropriate Committee discussions. The Committee may conduct business through mutually agreed upon sub-committees.

ARTICLE 9- GRIEVANCE & ARBITRATION PROCEDURE

SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below, provided, in all cases, that the question, dispute or claim arose during the term of this Agreement. Grievances shall include the City contract number and the Program Work address; such information is posted at the Program Work Site if already commenced, and is available in the City Record and Notice to Proceed for projects not already commenced.

Grievances as to whether a scope of work is included or excluded from this Agreement shall be submitted to the Labor Management Committee (LMC) in the first instance rather than Step 1 below. To be timely, such notice must be given no later than ten days prior to a bid opening if the grievance is challenging a determination by an Agency that the contract is not subject to this Agreement. For other grievances as to contractor scope of work issues, notice of such challenges shall be submitted to the LMC within 7 calendar days after the act, occurrence or event giving rise to the grievance. If the scope of work grievance is not resolved within 21 days of its submission to the LMC, then the grievance may proceed directly to Step 3 below.

Step 1:

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(a) When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site representative of the involved Contractor and the Construction Manager. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Construction Manager (or designee) as creating a precedent.

(b) Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

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A Step 2 grievance shall be filed with the Agency, the BCTC, the Contractor, and, if the grievance is against a subcontractor, the subcontractor. The Business Manager or designee of the involved Local Union, together with representatives of the involved Contractor, Council, the Construction Manager (or designee), and, if the grievance is against a subcontractor, the subcontractor, shall meet in Step 2 within 7 calendar days of service of the written grievance to arrive at a satisfactory settlement. The BCTC shall schedule the Step 2 meeting.

Step 3:

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Construction Manager or designee) to the BCTC. In the event the matter is not resolved at Step 2, either J.J. Pierson or Richard Adelman, who shall act, alternately (beginning with Arbitrator J.J. Pierson), as the Arbitrator under this procedure, shall be designated at the Step 2 hearing and the BCTC will notify the arbitrator of his designation. After such notification by the BCTC, the local demanding arbitration shall within a reasonable time request the arbitrator to schedule the matter for an arbitration hearing date. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

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(b) Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Construction Manager (or designee), involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

SECTION 2. LIMITATION AS TO RETROACTIVITY

No arbitration decision or award, with the exception of those related to compliance with requirements to pay prevailing wages and supplements in accordance with federal or State law, may provide retroactivity of any kind exceeding 60 calendar days prior to the date of service of the written grievance on the Construction Manager and the involved Contractor or Local Union.

**SECTION 3. PARTICIPATION BY AGENCY AND/OR CONSTRUCTION
MANAGER**

The Agency and Construction Manager (or such other designee of the Agency) shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

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ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 1. NO DISRUPTIONS

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

SECTION 2. ASSIGNMENT

All Program Work assignments shall be made by the Contractor to unions affiliated with the BCTC consistent with the New York Plan for the Settlement of Jurisdictional Disputes ("New York Plan") and its Greenbook decisions, if any. Where there are no applicable Greenbook decisions, assignments shall be made in accordance with the provisions of the New York Plan and local industry practice.

SECTION 3. NO INTERFERENCE WITH WORK

There shall be no interference or interruption of any kind with the Program Work while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award.

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ARTICLE 11 - WAGES AND BENEFITS

SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the hourly wage rates applicable for those classifications as required by the applicable prevailing wage laws.

SECTION 2. EMPLOYEE BENEFITS

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trustee employee benefit funds designated in the applicable Collective Bargaining Agreements in Schedule A (in the appropriate Schedule A amounts), provided that such benefits are required to be paid on public works under any applicable prevailing wage law. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if similarly required under applicable prevailing wage law. Contractors, not otherwise contractually bound to do so, shall not be required to contribute to benefits, trusts or plans of any kind which are not required by the prevailing wage law provided, however, that this provision does not relieve Contractors signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA.

B. 1. Notwithstanding Section 2 (A) above, and subject to 2 (B)(2) below, Contractors who designate employees pursuant to Article 4, Section 2 (B) and (C) ("core" employees) that are not signatory to a Schedule A Agreement and who maintain bona fide private benefit plans that satisfy the requirements of Section 220 of the Labor Law, may

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satisfy the above benefit obligation with respect to those employees by providing those employees with coverage under their private benefit plans (to the extent consistent with Section 220). The total benefit payments to be made on behalf of each such employee must be equal to the total Section 220 supplement amount and any shortfall must be paid by cash supplement to the employee.

2. A contractor that will satisfy its Section 220 obligations in accordance with subsection 2(B)(1) above shall make available to the Agency at the time of contract award a complete set of plan documents for each non-Schedule A benefit plan into which contributions will be made and/or coverage provided pursuant to the provisions of Section 2(B)(1) above. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220.

3. The City shall verify that the alternate benefit plan(s), together with any cash supplement to the employee, is compliant with Section 220 prior to awarding the Contractor a contract covered by this Agreement. In the event the Contractor's alternate benefit plan(s), together with any cash supplement to the employee, is determined to be compliant with Section 220 and will be utilized by the Contractor on behalf of Article 4, Section 2(B) and (C) core employees, the Local Unions have no duty to enforce the Contractor's obligations on the alternate benefit plan(s) as they are not party to the alternate plan(s) or privy to the terms and conditions of the plan obligations. In the event the City determines the alternate benefit plan(s), together with any cash supplement to the employee, is not compliant with Section 220, the Contractor may, upon executing a Letter

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of Assent, satisfy its obligations for all employees, including core employees, by contributing to the Schedule A benefit plans in accordance with the terms of the Schedule A Agreements.

C. The Contractors agree to be bound by the written terms of the legally established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to Program Work done under this Agreement and only for those employees to whom this Agreement requires such benefit payments.

D. 1. To the extent consistent with New York City's Procurement Policy Board Rules with respect to prompt payment, as published at www.nyc.gov/ppb, §4-06(e), and in consideration of the unions' waiver of their rights to withhold labor from a contractor or subcontractor delinquent in the payment of fringe benefits contributions ("Delinquent Contractor"); the Agency agrees that where any such union and/or fringe benefit fund shall notify the Agency, the General Contractor, and the Delinquent Contractor in writing with back-up documentation that the Delinquent Contractor has failed to make fringe benefit contributions to it as provided herein and the Delinquent Contractor shall fail, within ten (10) calendar days after receipt of such notice, to furnish either proof of such payment or notice that the amount claimed by the union and/or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by

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the Delinquent Contractor which the union or fringe benefit fund claims to be due it, and shall remit the amount when and so withheld to the fringe benefit fund and deduct such payment from the amounts then otherwise due and payable to the General Contractor, which payment shall, as between the General Contractor and the Agency, be deemed a payment by the Agency to the General Contractor; provided however, that in any month, such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. The union or its employee benefit funds shall include in its notification of delinquent payment of fringe benefits only such amount it asserts the Delinquent Contractor failed to pay on the specific project against which the claim is made and the union or its employee benefit funds may not include in such notification any amount such Delinquent Contractor may have failed to pay on any other City or non-City project.

2. In addition, where a union or employee benefit fund gives notice to the City that a Contractor is Delinquent as defined in subsection 2(D)(1) above and the City determines that the notice includes appropriate back-up documentation that the Contractor is delinquent, the City will promptly, but not later than twenty (20) days after receipt of the notice, provide a copy of said notice to City Agencies. In the event the City determines there is insufficient back-up documentation, it will notify the appropriate union and/or fringe benefit fund promptly, but not later than twenty (20) days after receipt of the Delinquency Notice, and shall include notice of what additional documentation is requested. Any determination by the City that there is insufficient back-up must be reasonable. This provision is intended to enhance compliance with the prevailing wage

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law and the PLA with respect to the payment of fringe benefits, and is not intended as a substitute for the resolution of a disputed claim pursuant to any applicable law or agreement.

The City and the relevant Agency(s) will thereafter require the Delinquent Contractor to provide cancelled checks or other equivalent proof of payment of benefit contributions that have come due, to be submitted with certified payroll reports for all Program Work covered by this Agreement on which the Delinquent Contractor is engaged, for at least a one-year period or such earlier period if the Contractor is ultimately determined not be a Delinquent Contractor. Such proof of payment when required is a condition of payment of the Delinquent Contractor's invoices by any entity, including, but not limited to, the City, the relevant Agency(s), Construction Manager, General Contractor, the prime or higher level subcontractor, as is appropriate under the Delinquent Contractor's engagement. The union and the funds shall upon request receive copies of the certified payrolls, cancelled checks, or other proof of payment from the City and/or the relevant Agency(s).

E. In the event the General Contractor or Delinquent Contractor shall notify the Agency as above provided that the claim of the union or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor that the union and/or fringe benefit fund claims to be due it, pending resolution of the dispute pursuant to the union's Schedule A agreement, and the amount shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the

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Delinquent Contractor and union or employee benefit fund shall otherwise agree as to the disposition thereof; provided however, that such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. In the event the Agency shall be required to withhold amounts from a General Contractor for the benefit of more than one fringe benefit fund, the amounts so withheld in the manner and amount prescribed above shall be applied to or for such fund in the order in which the written notices of nonpayment have been received by the Agency, and if more than one such notice was received on the same day, proportionately based upon the amount of the union and/or fringe benefit fund claims received on such day. Nothing herein contained shall prevent the Agency from commencing an interpleader action to determine entitlement to a disputed payment in accordance with section one thousand six of the civil practice law and rules or any successor provision thereto.

F. Payment to a fringe benefit fund under this provision shall not relieve the General Contractor or Delinquent Contractor from responsibility for the work covered by the payment. Except as otherwise provided, nothing contained herein shall create any obligation on the part of the Agency to pay any union or fringe benefit fund, nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the union/fund and/or fringe benefit and the Agency.

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ARTICLE 12- HOURS OF WORK, PREMIUM PAYMENTS,

SHIFTS AND HOLIDAYS

SECTION 1. WORK WEEK AND WORK DAY

A. The standard work week shall consist of 40 hours of work at straight time rates, Monday through Friday, 8 hours per day, plus ½ hour unpaid lunch period. The standard work week may be reduced to 35 or 37 ½ hours of work at straight time rates, Monday to Friday, 7 or 7 ½ hours per day, plus ½ hour unpaid lunch period in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.

B. In accordance with Program needs, there shall be flexible start times with advance notice from Contractor to the Union. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m., for an 8 hour day, and up to 7:30 p.m. for a 10 hour day. The Evening Shift shall commence between the hours of 3:00 p.m. and 6:00 p.m., unless different times are necessitated by the Agency's phasing plans on specific projects. The Night Shift shall commence between the hours of 11:00 p.m. and 2:00 a.m., unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

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C. Scheduling — Except as provided above, Monday through Friday is the standard work week; 8 hours of work plus ½ hour unpaid lunch. Notwithstanding any other provision of this Agreement, a contractor may schedule a four day work week, 10 hours per day at straight time rates, plus a ½ hour unpaid lunch, at the commencement of the job.

D. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hour schedules to be worked or such lesser notice as may be mutually agreed upon.

SECTION 2. OVERTIME

Overtime shall be paid for any work (i) over an employee's regularly scheduled work day, i.e., work over eight (8) hours in a day where 5/8s is scheduled, work over ten (10) hours in a day where 4/10s is scheduled, or work over seven (7) or seven and one half (7 ½) hours where such hours are scheduled pursuant to Article 12, section 1(A) and (ii) over forty (40) hours in a week, or over thirty five (35) or thirty seven and one-half (37 ½) where such hours are scheduled pursuant to Article 12, section 1(A). Overtime shall be paid at time and one half (1½) Monday through Saturday. All overtime work performed on Sunday and Holidays will be paid pursuant to the applicable Schedule A. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize

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overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

SECTION 3. SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Program Work schedules and existing Program Work conditions including the minimization of interference with the mission of the Agency. It is not necessary to work a day shift in order to schedule a second or third shift, or a second shift in order to schedule a third shift, or to schedule all of the crafts when only certain crafts or employees are needed. Shifts must have prior approval of the Agency or Construction Manager, and must be scheduled with not less than five work days notice to the Local Union or such lesser notice as may be mutually agreed upon.

B. Second and/or Third Shifts/Saturday and/or Sunday Work - - The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m., subject to different times necessitated by the Agency phasing plans on specific projects. There shall be no reduction in shift hour work. With respect to second and third shift work there shall be a 5% shift premium. No other premium or other payments for such work shall be required unless such work is in excess of the employee's regularly scheduled work week, i.e., 40 hours in the week or thirty five (35) or thirty seven and one half (37 ½) pursuant to Article 12, section 1(A). All employees within a classification performing Program Work will be paid at the same wage rate regardless of the shift or work scheduled work, subject only to the foregoing provisions.

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C. Flexible Starting Times - Shift starting times will be adjusted by the Contractor as necessary to fulfill Program Work requirements subject to the notice requirements of paragraph A.

SECTION 4. HOLIDAYS

A. Schedule - There shall be nine (9) recognized holidays on the Project:

New Year's Day

Martin Luther King Day President's Day

Memorial Day Veteran's Day

Labor Day Thanksgiving Day

Independence Day Christmas Day

All said holidays shall be observed on the calendar date except those holidays which occur on Saturday shall be observed on the previous Friday and those that occur on Sunday shall be observed on the following Monday.

B. Payment - Regular holiday pay, if any, for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4(A) above shall be recognized or observed.

SECTION 5. SATURDAY MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on

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a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day and such time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked.

SECTION 6. REPORTING PAY

A. Employees who report to the work location pursuant to their regular schedule and who are not provided with work shall be paid two hours reporting pay at straight time rates. An employee whose work is terminated early by a Contractor due to severe weather, power failure, fire or natural disaster or for similar circumstances beyond the Contractor's control, shall receive pay only for such time as is actually worked. In other instances in which an employee's work is terminated early (unless provided otherwise elsewhere in this Agreement), the employee shall be paid for his full shift. Contractors shall not be permitted to call, text or email or voicemail employees in advance of their regularly scheduled shift starting time to avoid reporting pay. Notwithstanding the above, in the event that the National Weather Service issues a weather advisory for the area in which the work location is situated, and the entire project is shut down as a result of the Weather Advisory, the contractor shall be permitted to speak to employees no less than four (4) hours in advance of their shift starting time, unless the Local Union consents to a shorter notice in writing, to advise them not to report to work due to the National Weather Service advisory, and employees who are so notified shall not receive two (2) hours reporting pay if they report to the work location. The contractor shall make every effort to

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notify each employee directly and confirm that notification has been received. Voice, text, and email messages left for employees without confirmation of delivery and receipt by employee do not constitute sufficient notice under this provision.

B. When an employee, who has completed their scheduled shift and left the Program Work site, is “called out” to perform special work of a casual, incidental or irregular nature, the employee shall receive overtime pay at the rate of time and one-half of the employee’s straight time rate for hours actually worked.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor’s invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special premium payments or reduction in shift hours of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article and except where an applicable Schedule A requires a full weeks’ pay for forepersons.

SECTION 7. PAYMENT OF WAGES

A. Termination- Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of lay off or discharge.

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SECTION 8. EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

SECTION 9. INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than a full day's pay in accordance with the employee's regularly scheduled work day under Article 12, section (1)(A). Further, the employee shall be rehired at such time as able to return to duties provided there is still Program Work available for which the employee is qualified and able to perform.

SECTION 10. TIME KEEPING

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

SECTION 11. MEAL PERIOD

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts or which provides for staggered lunch periods within a

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craft or trade. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

SECTION 12. BREAK PERIODS

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Where 4/10s are being worked there shall be a morning and an afternoon coffee break.

ARTICLE 13 - APPRENTICES

SECTION 1. RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio permitted by the New York State Department of Labor or the maximum allowed per trade. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate Schedule A. The parties encourage, as an appropriate source of apprentice recruitment consistent with the rules and operations of the affiliated unions' apprentice-programs, the use of the Edward J. Malloy Initiative for Construction Skills, Non-Traditional Employment for Women and Helmets to Hardhats.

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ARTICLE 14-SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 1. SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA and safety requirements are at all times maintained on the Program Work site and the employees and Unions agree to cooperate fully with these efforts to the extent consistent with their rights and obligations under the law. Employees will cooperate with employer safety policies and will perform their work at all times in a safe manner and protect themselves and the property of the Contractor and Agency from injury or harm, to the extent consistent with their rights and obligations under the law. Failure to do so will be grounds for discipline, including discharge.

SECTION 2. CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the Construction Manager for this Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

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SECTION 3. INSPECTIONS

The Contractors and Construction Manager retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

ARTICLE 15 - TEMPORARY SERVICES

Temporary services, i.e. all temporary heat, climate control, water, power and light, shall only be required upon the determination of the Agency or Construction Manager, and when used shall be staffed and assigned to the appropriate trade(s) with jurisdiction. Temporary services shall be provided by the appropriate Contractors' existing employees during working hours in which a shift is scheduled for employees of this Contractor. The Agency or Construction Manager may determine the need for temporary services requirements during non-working hours, and when used shall be staffed and assigned to the appropriate trades(s). There shall be no stacking of trades on temporary services, provided this does not constitute a waiver of primary trade jurisdiction. In the event a temporary system component is claimed by multiple trades, the matter shall be resolved through the New York Plan for Jurisdictional Disputes.

ARTICLE 16 - NO DISCRIMINATION

SECTION 1. COOPERATIVE EFFORTS

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of creed, race, color, religion, sex, sexual orientation, national origin, marital status, citizenship status, disability, age or any other status provided by law, in any manner prohibited by law or regulation.

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SECTION 2. LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 17- GENERAL TERMS

SECTION 1. PROJECT RULES

A. The Construction Manager and the Contractors shall establish such reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work. These rules will be explained at the pre-job conference and posted at the Program Work sites and may be amended thereafter as necessary. Notice of amendments will be provided to the appropriate Local Union. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is for cause.

B. The parties adopt and incorporate the BCTC's Standards of Excellence as annexed hereto as Exhibit "B".

SECTION 2. TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

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SECTION 3. SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 4. TRAVEL ALLOWANCES

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

SECTION 5. FULL WORK DAY

Employees shall be at their work area at the starting time established by the Contractor, provided they are provided access to the work area. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

SECTION 6. COOPERATION AND WAIVER

The Construction Manager, Contractors and the Unions will cooperate in seeking any NYS Department of Labor, or any other government, approvals that may be needed for implementation of any terms of this Agreement. In addition, the Council, on their own behalf and on behalf of its participating affiliated Local Unions and their individual members, intend the provisions of this Agreement to control to the greatest extent permitted by law, notwithstanding contrary provisions of any applicable prevailing wage, or other, law and intend this Agreement to constitute a waiver of any such prevailing wage, or other, law to the greatest extent permissible only for work within the scope of this Agreement, including specifically, but not limited to those provisions relating to shift, night, and similar differentials and premiums. This Agreement does not, however,

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constitute a waiver or modification of the prevailing wage schedules applicable to work not covered by this Agreement.

ARTICLE 18. SAVINGS AND SEPARABILITY

SECTION 1. THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

SECTION 2. THE BID SPECIFICATIONS

In the event that the Agency's (or Construction Manager's) bid specifications, or other action, requiring that a successful bidder (and subcontractor) become signatory to this Agreement is enjoined, on either an interlocutory or permanent

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basis, or is otherwise determined to be in violation of law, or may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, such requirement (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the Agreement shall remain in full force and effect to the extent allowed by law and to the extent no funding or exemption is lost). In such event, the Agreement shall remain in effect for contracts already bid and awarded or in construction only where the Agency and Contractor voluntarily accepts the Agreement. The parties will enter into negotiations as to modifications to the Agreement to reflect the court or other action taken and the intent of the parties for contracts to be let in the future.

SECTION 3. NON-LIABILITY

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

SECTION 4. NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.

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ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 1. CHANGES TO AREA CONTRACTS

A. Schedule A to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements that are the basis for the Schedule A notify the Agency and Construction Manager in writing of the changes agreed to in that Area Collective Bargaining which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule A collective bargaining agreements will not apply to work under this Agreement if such provisions are less favorable to those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied on Program Work if it may be construed to apply exclusively, or predominantly, to work covered by this Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Program Work by any Local Union involved in the renegotiation of Area

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Local Collective Bargaining Agreements nor shall there be any lock-out on such Program Work affecting a Local Union during the course of such renegotiations.

ARTICLE 20 - WORKERS' COMPENSATION ADR

SECTION 1.

An ADR program may be negotiated and participation in the ADR Program will be optional by trade.

ARTICLE 21 - HELMETS TO HARDHATS

SECTION 1.

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the New York City Helmets to Hardhats Program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

SECTION 2.

The Unions and Contractors agree to coordinate with the Program to create and maintain an integrated database of veterans interested in working on this Project and of

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apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

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IN WITNESS WHEREOF the parties have caused this Agreement to be executed and
effective as of the ___ day of _____, _____

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL
OF GREATER NEW YORK AND VICINITY

BY: _____
Gary LaBarbera
President

FOR NEW YORK CITY

BY:
Anthony Shorris
First Deputy Mayor

APPROVED AS TO FORM:

ACTING CORPORATION COUNSEL
NEW YORK CITY

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LIST OF SIGNATORY UNIONS
Boiler Makers Local No. 5
Carpenters District Council
Cement Masons No. 780
Concrete Workers, District Council No. 16
Derrickmen and Riggers, Local Union No. 197
Drywall Tapers 1974, District Council 9
Electrical Workers Local No. 3
Glaziers Local Union No. 1087 District Council 9
Heat & Frost Insulators, Local Union No. 12A
Heat & Frost Insulators, Local Union No. 12
Iron Workers District Council
Iron Workers Local Union No. 40
Iron Workers Local No. 361
Laborers Local No. 78, Asbestos & Lead Abatement
Laborers Local 1010 Pavers and Road Builders District Council
Laborers 79 Construction and General Building Laborers
Laborers Local No. 731 Excavators
Mason Tenders District Council
Metal Lathers Local No. 46
Metal Polishers District Council 9
Ornamental Iron Workers Local No. 580
Painters District Council 9
Plumbers Local No. 1
Painters, Decorators & Wallcoverers District Council 9
Painters Structural Steel No. 806
Plasterers Local Union No. 262
Roofers & Waterproofers Local 8
Steamfitters Local Union No. 638
Sheet Metal Workers Local No. 28
Sheet Metal Workers Local No. 137
Teamsters Local Union No. 282
Teamsters Local Union 814
Teamsters Local No. 813 Private Sanitation
Tile, Marble & Terrazzo B.A.C. Local Union No. 7
Elevator Constructors Union Local No. 1

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SCHEDULE "A"

Union	Current Agreement w/
Architectural and Ornamental Iron Workers Local Union 580, AFL-CIO	Allied Building Metal Industries, Inc.
Building, Concrete, Excavating & Common Laborers Local 731	Independent
Building, Concrete, Excavating & Common Laborers Local 731	Members of the General Contractors Association of New York, Inc.
District Council No. 9, I.U.P.A.T Glaziers Local 1087	Window and Plate Glass Dealers Association
Drywall Tapers and Pointers Local 1974, affiliated with International Union of Painters & Allied Trades and Drywall Taping Contractor's Association & Association of Wall-Ceiling & Carpentry Industries NY, Inc.	Independent
Enterprise Association of Steamfitters and Apprentices Local 638	Mechanical Contractors Association of NY, Inc.
Enterprise Association of Steamfitters and Apprentices Local 638	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Member of the General Contractors Association of New York, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	Independent
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	The Insulation Contractors Association of New York City, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Independent

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International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Environmental Contractors Association, Inc.
International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO, Local Lodge No. 5	Boilermakers Association of Greater New York
Local Union No. 3 International Brotherhood of Electrical Workers, AFL-CIO	New York Electrical Contractors Association
International Brotherhood of Teamsters, Local 282, High Rise contract	Building Contractors Association & Independents
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Cement League
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Independent
Local 8 Roofers, Waterproofers & Allied Workers	Roofing and Waterproofing Contractors Association of New York and Vicinity
Local Union 1 of the United Association of Journeymen and Apprentices of the Pipe Fitting Industry of the United States and Canada	Association of Contracting Plumbers of the City of New York
Local Union Number 40 & 361 of Bridge, Structural Ornamental and Reinforcing Iron Workers AFL-CIO	Independent
Operative Plasterers' and Cement Masons' International Association Local No. 262	Independent
Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	Independent

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Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	The Association of Master Painters & Decorators of NY, Inc. and The Association of Wall, Ceiling & Carpentry Industries of NY, Inc. and The Window and Plate Glass Dealers Association
Sheet Metal Workers' International Association, Local 28	Sheet Metal & Air Conditioning Contractors Association of New York City, Inc.
Sheet Metal Workers' International Association, Local 137	The Greater New York Sign Association
Structural Steel and Bridge Painters Local 806, DC 9 International Union of Painters and Allied Trades, AFL-CIO	New York Structural Steel Painting Contractors Association
Teamsters Local 813	Independent
Teamsters Local 813	IESI NY Corporation
Teamsters Local 814	Greater New York Movers and Warehousemen's Bargaining Group
The Cement Masons' Union, Local 780	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A, Local 18A and Local 20)	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A, Local 18A and Local 20)	Independent

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local No. 1556	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Millwright Local 740	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Manufacturing Woodworkers Association of Greater New York Incorporated.
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Hoisting Trade Association of New York, Inc.
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Test Boring Association

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	Building Contractors Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Association of Wall-Ceiling & Carpentry Industries of New York, Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	The Cement League
The District Council of NYC and Vicinity of the United Brotherhood of Carpenters and Joiners of America	New York City Millwright Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	Greater New York Floor Covering Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Association of Architectural Metal & Glass
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Building Construction Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Local 2287	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Shop Carpenters	Independent
The Tile Setters and Tile Finishers Union of New York and New Jersey, Local 7 of the International Bricklayers and Allied Craftworkers	The Greater New York and New Jersey Contractors Association

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United Derrickmen & Riggers Association, Local 197 of NY, LI, Westchester & Vicinity	Contracting Stonesetters Association Inc.
United Derrickmen & Riggers Association L 197 of NY, LI, Westchester and Vicinity	Building Stone and Pre-cast Contractors Association
International Union of Operating Engineers Local 14-14B	Building Contractors Association
International Union of Operating Engineers Local 14-14B	Contractors Association of Greater NY
International Union of Operating Engineers Local 14-14B	GCA
International Union of Operating Engineers Local 14-14B	The Cement League
International Union of Operating Engineers Local 14-14B	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 14-14B	Brick Association
International Union of Operating Engineers Local 14-14B	Independent
International Union of Operating Engineers Local 15	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 15-15A	General Contractors Association
International Union of Operating Engineers Local 15D	General Contractors Association
International Union of Operating Engineers Local 15D	Structural Steel Erectors

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International Union of Operating Engineers Local 15-15A	Building Contractors Association
International Union of Operating Engineers Local 15D	Building Contractors Association
International Union of Operating Engineers Local 15-15A	Contractors Association of Greater NY
International Union of Operating Engineers Local 15D	Contractors Association of Greater NY
International Union of Operating Engineers Local 15-15A	The Cement League
International Union of Operating Engineers Local 15D	The Cement League

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ADDITIONAL PARTICIPATING UNIONS

Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers

ADDITIONAL PARTICIPATING UNION SCHEDULE A

Union	Current Agreement with:
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Associated Brick Masons Contractors
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Building Restoration Contractors Association
Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Building Contractors Association
The Stone Setters of Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent
The Plasterers of Local No. 1 New York of the International Union of Bricklayers and Allied Craft Workers	Independent

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Project Labor Agreement -- Letter of Assent

Dear: NYC Dept. of Design & Construction

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

The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as * _____ and located at ** _____ (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby: ** 47-01 111 St., Corona, NY 11368

* NY Hall of Science, Chiller Replacement and BMS Upgrade, Project No. PV274CHLL

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

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

HVAC Work

Steamfitters, Local Union 638

Project No. PV274CHLL

Contract No. 1 - HVAC Work

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Dated: February 28, 2020

C.D.E. Air Conditioning Co., Inc.
(Name of Contractor or subcontractor)

C.D.E. Air Conditioning Co., Inc.
(Name of CM; GC; Contractor or
Higher Level Subcontractor)

Joseph F. Azara
(Authorized Officer & Title)
Joseph F. Azara, President
321 39th St., Brooklyn, NY 11232
(Address)

718-788-1040 / 718-788-2046
(Phone) (Fax)

Contractor's State License
N/A

Sworn to before me this
28th day of February, 2020

Robert J. Ayoub
Notary Public

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

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**NEW YORK CITY BUILDING AND CONSTRUCTION TRADES COUNCIL
STANDARDS OF EXCELLENCE**

The purpose of this Standard of Excellence is to reinforce the pride of every construction worker and the commitment to be the most skilled, most productive and safest workforce available to construction employers and users in the City of New York. It is the commitment of every affiliated local union to use our training and skills to produce the highest quality work and to exercise safe and productive work practices.

The rank and file members represented by the affiliated local unions acknowledge and adopt the following standards:

- *Provide a full days work for a full days pay;*
- *Safely work towards the timely completion of the job;*
- *Arrive to work on time and work until the contractual quitting time;*
- *Adhere to contractual lunch and break times;*
- *Promote a drug and alcohol free work site;*
- *Work in accordance with all applicable safety rules and procedures;*
- *Allow union representatives to handle job site disputes and grievances without resort to slowdowns, or unlawful job disruptions;*
- *Respect management directives that are safe, reasonable and legitimate;*
- *Respect the rights of co-workers;*
- *Respect the property rights of the owner, management and contractors.*

The Unions affiliated with the New York City Building and Construction Trades Council will expect the signatory contractors to safely and efficiently manage their jobs and the unions see this as a corresponding obligation of the contractors under this Standard of Excellence. The affiliated unions will expect the following from its signatory contractors:

- *Management adherence to the collective bargaining agreements;*
- *Communication and cooperation with the trade foremen and stewards;*
- *Efficient, safe and sanitary management of the job site;*
- *Efficient job scheduling to mitigate and minimize unproductive time;*
- *Efficient and adequate staffing by properly trained employees by trade;*
- *Efficient delivery schedules and availability of equipment and tools to ensure efficient job progress;*
- *Ensure proper blueprints, specifications and layout instructions and material are available in a timely manner*
- *Promote job site dispute resolution and leadership skills to mitigate such disputes;*
- *Treatment of all employees in a respectful and dignified manner acknowledging their contributions to a successful project.*

The affiliated unions and their signatory contractors shall ensure that both the rank and file members and the management staff shall be properly trained in the obligations undertaken in the Standard of Excellence.

NYC AGENCY RENOVATION & REHAB CITY OWNED
BUILDINGS/STRUCTURES PLA



Codes of Conduct

BuildSafeNYC establishes that all BTEA member companies and BCTC member unions establish minimum safety standards on all building construction projects in NYC as follows:

1. The workforce shall adhere to the minimum personal protective equipment (PPE) usage to include:
 - a. ANSI compliant Hard Hats (with ratchet suspension) at all times (supplied by employer)
 - b. Construction-type Work Boots at all times
 - c. Long Pants and shirts with at least short sleeves at all times (no shorts or tank tops)
 - d. ANSI compliant Eye Protection in their possession and used as needed (supplied by employer)
 - e. Adequate Hearing Protection in their possession and used as needed (supplied by employer)
 - f. High-vis traffic vests at street level and when around heavy equipment (supplied by employer)
2. CM and Subcontractor management shall implement a fair and consistent disciplinary policy for all site personnel regarding the adherence to site safety rules and requirements. Likewise, a joint labor / management team will periodically assess project wide implementation of these Codes.
3. CM firms shall maintain minimum standards for workforce restroom, hygiene facilities and housekeeping, initially and throughout the duration of the project.
4. All personnel shall adhere to a strict policy against drug and alcohol possession and use on sites and during hours of work.
5. All personnel shall attend a site safety orientation prior to beginning work. Worker certifications of safety training for specific tasks such as fire watch, flagman, and safety attendant must be verified.
6. No cell phones, portable media devices, radios or other devices that limit hearing and attention shall be used while working on sites.
7. Ground Fault Circuit Interrupters (GFCI) will be used on all power tools and extension cords.
8. Union trade representatives shall participate in a regularly scheduled site safety meeting on all projects regardless of size.
9. Extreme effort shall be made to isolate the public from all construction activity. Specifically, systems shall be put in place to control falling materials and pedestrian exposure. This should be a top priority for the entire project workforce.
10. Workers shall honor security access control systems to establish entry to sites by authorized personnel only, where applicable.
11. Fall protection management shall be a top project priority. Workers shall maintain and use necessary fall protection systems and procedures where appropriate. Engineering controls and work methods which eliminate, guard, or otherwise control fall hazards shall take priority over personal fall arrest system usage.
12. Where hazardous materials are present, projects shall implement efforts to communicate and control potential exposure to the workforce.

With Full Support and Endorsement of:

James Colella
 Louis J. Colella, President & CEO
 Building Trades Employers Association
BTEANYC The Voice of
 Building Trades Employers Association

Edward J. Malley
 Edward J. Malley, President
 Building and Construction Trades Council

<i>James Abadio</i> District Local 100	<i>John A. Salinger</i> Senior Construction	<i>John J. Salinger</i> Construction Management Firm	<i>John J. Salinger</i> District Local 100	<i>John J. Salinger</i> District Local 100
<i>John J. Salinger</i> District Local 100	<i>John J. Salinger</i> District Local 100	<i>John J. Salinger</i> District Local 100	<i>John J. Salinger</i> District Local 100	<i>John J. Salinger</i> District Local 100
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NOTICE TO BIDDERS

Please note that the Safety Requirements for Construction Contracts has been updated. Changes include but are not limited to:

1. **Throughout**: Change name of Construction Safety Unit to Office of Construction Safety.
2. **Section III**: Updated definition of "Work" to include Utility Interference work.
3. **Section VI**: Allow for the Office of Construction Safety to request Site Safety Plan to be developed and approved using the SSP App.

***NOTE:** The list above is intended as a guide.
The text of the Safety Requirements for Construction Contracts govern.*

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1/2/2020

DISCONTINUE THE USE OF THIS NOTICE ON 7/2/2020

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

INFORMATION FOR BIDDERS

JULY 2019

*CITY OF NEW YORK CITY
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFORMATION FOR BIDDERS*

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INFORMATION FOR BIDDERS

1. Description and Location of Work

The description and location of the work for which bids are requested are specified in Attachment 1, "Bid Information". Attachment 1 is included in the BID BOOKLET, 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 or unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and

(e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

- (1) Award to a certified New York City small, minority or woman-owned business entity bidder;
- (2) Award to a New York City bidder;
- (3) Award to a certified New York State small, minority or woman-owned business bidder;
- (4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

- (1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
- (2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
- (3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
- (4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

- (1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or
- (2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract

without issuing a new solicitation, subject to the following conditions:

- (1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;
- (2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and
- (3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. 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 to be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

(C) Overruns: The terms and conditions applicable to overruns of unit price items are set forth in Article 26 of the Contract.

34. Excise Tax

Bidders are referred to the Specifications for information on Federal Excise Tax exemptions.

35. Licenses and Permits

The successful bidder will be required to obtain all necessary licenses and permits necessary to perform the work.

36. Multiple Prime Contractors

If more than one prime contractor will be involved on this project, all contractors are required to examine the Invitation for Bid packages for all other parts of the project.

37. Locally Based Enterprise Requirements (LBE)

This Contract is subject to the requirements of Administrative Code, Section 6-108.1, and the regulations promulgated thereunder. No construction contract will be awarded unless and until these requirements have been complied with in their entirety. The bidder is advised of the provisions set forth below, as well as the provisions with respect to the Locally Based Enterprise Program contained in Article 67 of the Contract. The contractor is advised that:

(A) If any portion of the Contract is subcontracted, not less than ten percent of the total dollar amount of the contract shall be awarded to locally based enterprises ("LBEs"); except, where less than ten percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

(B) No contractor shall require performance and payment bonds from LBE subcontractors.

(C) No Contract shall be awarded unless the contractor first identifies in its bid:

- (1) the percentage, dollar amount and type of work to be subcontracted; and
- (2) the percentage, dollar amount and type of work to be subcontracted to LBEs.

(D) Within ten calendar days after notification of low bid, the apparent low bidder shall submit an "LBE Participation Schedule" to the contracting agency. If such schedule does not identify sufficient LBE subcontractors to meet the requirements of Administrative Code Section 6-108.1, the apparent low bidder shall submit documentation of its good faith efforts to meet such requirements.

(1) The "LBE Participation Schedule" shall include:

- (a) the name and address of each LBE that will be given a subcontract,
- (b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and
- (c) the dates when the LBE subcontract work will commence and end.

(2) The following documents shall be attached to the "LBE Participation Schedule":

- (a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,
- (b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and
- (c) copies of the certification letter of any proposed subcontractor which is an LBE.

(3) Documentation of good faith efforts to achieve the required LBE percentage shall include as appropriate but not limited to the following:

- (a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;
- (b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;
- (c) written notification to association of small, minority and women contractors soliciting specific subcontractors;
- (d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;
- (e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;
- (f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:
 - (i) The names, address and telephone numbers of LBE firms that are contacted;
 - (ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;
 - (iii) Documentation showing that no reasonable price can be obtained from LBE firms;
 - (iv) A statement of why agreements with LBE firms were not reached;
- (g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and
- (h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

(E) Unless otherwise waived by the Commissioner with the approval of the Office of Economic and Financial Opportunity, failure of a proposed contractor to provide the information required by paragraphs (C) and (D) above may render the bid non-responsive and the Contract may not be awarded to the bidder. If the contractor states that it will subcontract a specific portion of the work, but can demonstrate despite good faith efforts it cannot achieve its required LBE percentage for subcontracted work until after award of Contract, the Contract may be awarded, subject to a letter of compliance from the contractor stating that it will comply with Administrative Code Section 6-108.1 and subject to approval by the Commissioner. If the contractor has not met its required LBE percentage prior to award, the contractor shall demonstrate that a good faith effort has been made subsequent to award to obtain LBEs on each subcontract until it meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth 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, contractor'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 oversight 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 temporarily 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

*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 **Contract** 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 **Commissioner** prior to the expiration date of coverage of policies required under this **Contract**. Such proofs of insurance shall comply with the requirements of Articles 22.3.2 and 22.3.3.

22.3.5 The **Contractor** shall be obligated to provide the **City** with a copy of any policy of insurance provided pursuant to this Article 22 upon the demand for such policy by the **Commissioner** or the **City** Corporation Counsel.

22.4 Operations of the **Contractor**:

22.4.1 The **Contractor** shall not commence the **Work** unless and until all required certificates have been submitted to and accepted by the **Commissioner**. Acceptance by the **Commissioner** of a certificate does not excuse the **Contractor** from securing insurance consistent with all provisions of this Article 22 or of any liability arising from its failure to do so.

22.4.2 The **Contractor** shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this **Contract** and shall be authorized to perform **Work** only during the effective period of all required coverage.

22.4.3 In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the **Contractor** shall immediately stop all **Work**, and shall not recommence **Work** until authorized in writing to do so by the **Commissioner**. Upon quitting the **Site**, except as otherwise directed by the **Commissioner**, the **Contractor** shall leave all plant, materials, equipment, tools, and supplies on the **Site**. **Contract** time shall continue to run during such periods and no extensions of time will be granted. The **Commissioner** may also declare the **Contractor** in default for failure to maintain required insurance.

22.4.4 In the event the **Contractor** receives notice, from an insurance company or other person, that any insurance policy required under this Article 22 shall be cancelled or terminated (or has been cancelled or terminated) for any reason, the **Contractor** shall immediately forward a copy of such notice to both the **Commissioner** and the New York City Comptroller, attn: Office of Contract Administration, Municipal Building, One Centre Street, room 1005, New York, New York 10007. Notwithstanding the foregoing, the **Contractor** shall ensure that there is no interruption in any of the insurance coverage required under this Article 22.

22.4.5 Where notice of loss, damage, occurrence, accident, claim or suit is required under an insurance policy maintained in accordance with this Article 22, the **Contractor** shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this **Contract** (including notice to Commercial General Liability insurance carriers for events relating to the **Contractor's** own employees) no later than 20 days after such event. For any policy where the **City** is an Additional Insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The **Contractor** shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

22.4.6 In the event of any loss, accident, claim, action, or other event that does or can give rise to a claim under any insurance policy required under this Article 22, the **Contractor** shall at all times fully cooperate with the **City** with regard to such potential or actual claim.

22.5 **Subcontractor Insurance:** In the event the **Contractor** requires any **Subcontractor** to procure insurance with regard to any operations under this **Contract** and requires such **Subcontractor** to name the **Contractor** as an **Additional Insured** thereunder, the **Contractor** shall ensure that the **Subcontractor** name the **City**, including its officials and employees, as an Additional Insured with coverage at least as broad as the most recent edition of ISO Form CG 20 26.

22.6 Wherever reference is made in Article 7 or this Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Schedule A of the General Conditions. In the event no address is set forth in Schedule A, such documents are to be sent to the **Commissioner's** address as provided elsewhere in this **Contract**.

22.7 Apart from damages or losses covered by insurance provided pursuant to Articles 22.1.2, 22.1.3, or 22.1.5, the **Contractor** waives all rights against the **City**, including its officials and employees, for any damages or losses that are covered under any insurance required under this Article 22 (whether or

not such insurance is actually procured or claims are paid thereunder) or any other insurance applicable to the operations of the **Contractor** and/or its employees, agents, or **Subcontractors**.

22.8 In the event the **Contractor** utilizes a self-insurance program to satisfy any of the requirements of this Article 22, the **Contractor** shall ensure that any such self-insurance program provides the **City** with all rights that would be provided by traditional insurance under this Article 22, including but not limited to the defense and indemnification obligations that insurers are required to undertake in liability policies.

22.9 Materiality/Non-Waiver: The **Contractor's** failure to secure policies in complete conformity with this Article 22, or to give an insurance company timely notice of any sort required in this **Contract** or to do anything else required by this Article 22 shall constitute a material breach of this **Contract**. Such breach shall not be waived or otherwise excused by any action or inaction by the **City** at any time.

22.10 Pursuant to General Municipal Law Section 108, this **Contract** shall be void and of no effect unless **Contractor** maintains Workers' Compensation Insurance for the term of this **Contract** to the extent required and in compliance with the New York State Workers' Compensation Law.

22.11 Other Remedies: Insurance coverage provided pursuant to this Article 22 or otherwise shall not relieve the **Contractor** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions available to it under any other provisions of this **Contract** or **Law**.

ARTICLE 23. MONEY RETAINED AGAINST CLAIMS

23.1 If any claim shall be made by any person or entity (including **Other Contractors** with the **City** on this **Project**) against the **City** or against the **Contractor** and the **City** for any of the following:

- (a) An alleged loss, damage, injury, theft or vandalism of any of the kinds referred to in Articles 7 and 12, plus the reasonable costs of defending the **City**, which in the opinion of the **Comptroller** may not be paid by an insurance company (for any reason whatsoever); or
- (b) An infringement of copyrights, patents or use of patented articles, tools, etc., as referred to in Article 57; or
- (c) Damage claimed to have been caused directly or indirectly by the failure of the **Contractor** to perform the **Work** in strict accordance with this **Contract**,

the amount of such claim, or so much thereof as the **Comptroller** may deem necessary, may be withheld by the **Comptroller**, as security against such claim, from any money due hereunder. The **Comptroller**, in his/her discretion, may permit the **Contractor** to substitute other satisfactory security in lieu of the monies so withheld.

23.2 If an action on such claim is timely commenced and the liability of the **City**, or the **Contractor**, or both, shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the **Contractor** to be valid, the **Comptroller** shall pay such judgment or admitted claim out of the monies retained by the **Comptroller** under the provisions of this Article 23, and return the balance, if any, without interest, to the **Contractor**.

ARTICLE 24. MAINTENANCE AND GUARANTY

24.1 The **Contractor** shall promptly repair, replace, restore or rebuild, as the **Commissioner** may determine, any finished **Work** in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of **Substantial Completion** (or use and occupancy in accordance with Article 16), except where other periods of maintenance and guaranty are provided for in Schedule A.

24.2 As security for the faithful performance of its obligations hereunder, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to one (1%) percent of the price (or the amount fixed in Schedule A of the General Conditions) in cash or certified check upon a state or national bank and trust company or a check of such bank and trust company signed by a duly authorized officer thereof and drawn to the order of the **Comptroller**, or obligations of the **City**, which the **Comptroller** may approve as of equal value with the sum so required.

24.3 In lieu of the above, the **Contractor** may make such security payment to the **City** by authorizing the **Commissioner** in writing to deduct the amount from the **Substantial Completion** payment which shall be deemed the deposit required above.

24.4 If the **Contractor** has faithfully performed all of its obligations hereunder the **Commissioner** shall so certify to the **Comptroller** within five (5) **Days** after the expiration of one (1) year from the date of **Substantial Completion** and acceptance of the **Work** or within thirty (30) **Days** after the expiration of the guarantee period fixed in the **Specifications**. The security payment shall be repaid to the **Contractor** without interest within thirty (30) **Days** after certification by the **Commissioner** to the **Comptroller** that the **Contractor** has faithfully performed all of its obligations hereunder.

24.5 Notice by the **Commissioner** to the **Contractor** to repair, replace, rebuild or restore such defective or damaged **Work** shall be timely, pursuant to this article, if given not later than ten (10) **Days** subsequent to the expiration of the one (1) year period or other periods provided for herein.

24.6 If the **Contractor** shall fail to repair, replace, rebuild or restore such defective or damaged **Work** promptly after receiving such notice, the **Commissioner** shall have the right to have the **Work** done by others in the same manner as provided for in the completion of a defaulted **Contract**, under Article 51.

24.7 If the security payment so deposited is insufficient to cover the cost of such **Work**, the **Contractor** shall be liable to pay such deficiency on demand by the **Commissioner**.

24.8 The **Engineer's** certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective **Work** when performed by one other than the **Contractor**, shall be binding and conclusive upon the **Contractor** as to the amount thereof.

24.9 The **Contractor** shall obtain all manufacturers' warranties and guaranties of all equipment and materials required by this **Contract** in the name of the **City** and shall deliver same to the **Commissioner**. All of the **City's** rights and title and interest in and to said manufacturers' warranties and guaranties may be assigned by the **City** to any subsequent purchasers of such equipment and materials or lessees of the premises into which the equipment and materials have been installed.

CHAPTER VI: CHANGES, EXTRA WORK, AND DOCUMENTATION OF CLAIM

ARTICLE 25. CHANGES

25.1 Changes may be made to this **Contract** only as duly authorized in writing by the **Commissioner** in accordance with the **Law** and this **Contract**. All such changes, modifications, and amendments will become a part of the **Contract**. **Work** so ordered shall be performed by the **Contractor**.

25.2 **Contract** changes will be made only for **Work** necessary to complete the **Work** included in the original scope of the **Contract** and/or for non-material changes to the scope of the **Contract**. Changes are not permitted for any material alteration in the scope of **Work** in the **Contract**.

25.3 The **Contractor** shall be entitled to a price adjustment for **Extra Work** performed pursuant to a written change order. Adjustments to price shall be computed in one or more of the following ways:

25.3.1 By applicable unit prices specified in the **Contract**; and/or

25.3.2 By agreement of a fixed price; and/or

25.3.3 By time and material records; and/or

25.3.4 In any other manner approved by the **CCPO**.

25.4 All payments for change orders are subject to pre-audit by the **Engineering Audit Officer** and may be post-audited by the **Comptroller** and/or the **Agency**.

ARTICLE 26. METHODS OF PAYMENT FOR OVERRUNS AND EXTRA WORK

26.1 **Overrun of Unit Price Item:** An overrun is any quantity of a unit price item which the **Contractor** is directed to provide which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule.

26.1.1 For any unit price item, the **Contractor** will be paid at the unit price bid for any quantity up to one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule. If during the progress of the **Work**, the actual quantity of any unit price item required to complete the **Work** approaches the estimated quantity for that item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the **Work** will exceed the estimated quantity for that item by twenty-five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer**.

26.1.2 If the actual quantity of any unit price item necessary to complete the **Work** will exceed one hundred twenty five (125%) percent of the estimated quantity for that item set forth in the bid schedule, the **City** reserves the right and the **Contractor** agrees to negotiate a new unit price for such item. In no event shall such negotiated new unit price exceed the unit bid price. If the **City** and **Contractor** cannot agree on a new unit price, then the **City** shall order the **Contractor** and the **Contractor** agrees to provide additional quantities of

the item on the basis of time and material records for the actual and reasonable cost as determined under Article 26.2, but in no event at a unit price exceeding the unit price bid.

26.2 **Extra Work:** For **Extra Work** where payment is by agreement on a fixed price in accordance with Article 25.3.2, the price to be paid for such **Extra Work** shall be based on the fair and reasonable estimated cost of the items set forth below. For **Extra Work** where payment is based on time and material records in accordance with Article 25.3.3, the price to be paid for such **Extra Work** shall be the actual and reasonable cost of the items set forth below, calculated in accordance with the formula specified therein, if any.

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

26.2.2 Necessary direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits; plus

26.2.3 Sales and personal property taxes, if any, required to be paid on materials not incorporated into such **Extra Work**; plus

26.2.4 Reasonable rental value of **Contractor**-owned (or **Subcontractor**-owned, as applicable), necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per operating hour: $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$. Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by Equipment Watch (the "Green Book"), or seventy-five percent of the monthly prorated rental rates established in the "Rental Rate Blue Book for Construction Equipment" published by Equipment Watch (the "Blue Book") (the applicable Blue Book rate being for rental only without the addition of any operational costs listed in the Blue Book). The reasonable rental value is deemed to be inclusive of all operating costs except for fuel/energy consumption and equipment operator's wages/costs. For multiple shift utilization, reimbursement shall be calculated as follows: first shift shall be seventy-five (75%) percent of such rental rates; second shift shall be sixty (60%) percent of the first shift rate; and third shift shall be forty (40%) percent of the first shift rate. Equipment on standby shall be reimbursed at one-third (1/3) the prorated monthly rental rate. **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment includes equipment from rental companies affiliated with or controlled by the **Contractor** (or **Subcontractor**, as applicable), as determined by the **Commissioner**. In establishing cost reimbursement for non-operating **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment (scaffolding, sheeting systems, road plates, etc.), the **City** may restrict reimbursement to a purchase-salvage/life cycle basis if less than the computed rental costs; plus

26.2.5 Necessary installation and dismantling of such plant and equipment, including transportation to and from the **Site**, if any, provided that, in the case of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) equipment rented from a third party, the cost of installation and dismantling are not allowable if such costs are included in the rental rate; plus

26.2.6 Necessary fees charged by governmental entities; plus

26.2.7 Necessary construction-related service fees charged by non-governmental entities, such as landfill tipping fees; plus

26.2.8 Reasonable rental costs of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per hour of operation: $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$. In lieu of renting, the **City** reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 Workers' Compensation Insurance, and any insurance coverage expressly required by the **City** for the performance of the **Extra Work** which is different than the types of insurance required by Article 22 and Schedule A of the General Conditions. The cost of Workers' Compensation Insurance is subject to applicable payroll limitation caps and shall be based upon the carrier's Manual Rate for such insurance derived from the applicable class Loss Cost ("LC") and carrier's Lost Cost Multiplier ("LCM") approved by the New York State Department of Financial Services, and with the exception of experience rating, rate modifiers as promulgated by the New York Compensation Insurance Rating Board ("NYCIRB"); plus

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

26.2.11 Twelve percent (12%) percent of the total of items in Articles 26.2.1 through 26.2.5 as compensation for overhead, except that no percentage for overhead will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes. Overhead shall include without limitation, all costs and expenses in connection with administration, management superintendence, small tools, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance; plus

26.2.12 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus the items in Article 26.2.11, as compensation for profit, except that no percentage for profit will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes; plus

26.2.13 Five (5%) percent of the total of items in Articles 26.2.6 through 26.2.10 as compensation for overhead and profit.

26.3 Where the **Extra Work** is performed in whole or in part by other than the **Contractor's** own forces pursuant to Article 26.2, the **Contractor** shall be paid, subject to pre-audit by the **Engineering Audit Officer**, the cost of such **Work** computed in accordance with Article 26.2 above, plus an additional allowance of five (5%) percent to cover the **Contractor's** overhead and profit.

26.4 Where a change is ordered, involving both **Extra Work** and omitted or reduced **Contract Work**, the **Contract** price shall be adjusted, subject to pre-audit by the **EAO**, in an amount based on the difference between the cost of such **Extra Work** and of the omitted or reduced **Work**.

26.5 Where the **Contractor** and the **Commissioner** can agree upon a fixed price for **Extra Work** in accordance with Article 25.3.2 or another method of payment for **Extra Work** in accordance with

Article 25.3.4, or for **Extra Work** ordered in connection with omitted **Work**, such method, subject to pre-audit by the **EAO**, may, at the option of the **Commissioner**, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the **Extra Work** is performed by a **Subcontractor**, the **Contractor** shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over the cost of such **Subcontractor's Work** as computed in accordance with Article 26.2.

ARTICLE 27. RESOLUTION OF DISPUTES

27.1 All disputes between the **City** and the **Contractor** of the kind delineated in this Article 27.1 that arise under, or by virtue of, this **Contract** shall be finally resolved in accordance with the provisions of this Article 27 and the **PPB Rules**. This procedure for resolving all disputes of the kind delineated herein shall be the exclusive means of resolving any such disputes.

27.1.1 This Article 27 shall not apply to disputes concerning matters dealt with in other sections of the **PPB Rules**, or to disputes involving patents, copyrights, trademarks, or trade secrets (as interpreted by the courts of New York State) relating to proprietary rights in computer software.

27.1.2 This Article 27 shall apply only to disputes about the scope of **Work** delineated by the **Contract**, the interpretation of **Contract** documents, the amount to be paid for **Extra Work** or disputed work performed in connection with the **Contract**, the conformity of the **Contractor's Work** to the **Contract**, and the acceptability and quality of the **Contractor's Work**; such disputes arise when the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** makes a determination with which the **Contractor** disagrees.

27.2 All determinations required by this Article 27 shall be made in writing clearly stated, with a reasoned explanation for the determination based on the information and evidence presented to the party making the determination. Failure to make such determination within the time required by this Article 27 shall be deemed a non-determination without prejudice that will allow application to the next level.

27.3 During such time as any dispute is being presented, heard, and considered pursuant to this Article 27, the **Contract** terms shall remain in force and the **Contractor** shall continue to perform **Work** as directed by the **ACCO** or the **Engineer**. Failure of the **Contractor** to continue **Work** as directed shall constitute a waiver by the **Contractor** of its claim.

27.4 Presentation of Disputes to **Commissioner**.

Notice of Dispute and Agency Response. The **Contractor** shall present its dispute in writing ("Notice of Dispute") to the **Commissioner** within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the **Contract**. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the **Contractor** relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the **Contractor** in the dispute was arrived at. Within thirty (30) Days after receipt of the detailed written submission comprising the complete Notice of Dispute, the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** shall submit to the **Commissioner** all materials he or she deems pertinent to the dispute. Following initial submissions to the **Commissioner**, either party may demand of the other the production of any document or other material the demanding party believes may be relevant to the dispute. The requested party shall produce all relevant materials that are not otherwise

protected by a legal privilege recognized by the courts of New York State. Any question of relevancy shall be determined by the **Commissioner** whose decision shall be final. Willful failure of the **Contractor** to produce any requested material whose relevancy the **Contractor** has not disputed, or whose relevancy has been affirmatively determined, shall constitute a waiver by the **Contractor** of its claim.

27.4.1 **Commissioner Inquiry.** The **Commissioner** shall examine the material and may, in his or her discretion, convene an informal conference with the **Contractor**, the **ACCO**, and the **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner** to resolve the issue by mutual consent prior to reaching a determination. The **Commissioner** may seek such technical or other expertise as he or she shall deem appropriate, including the use of neutral mediators, and require any such additional material from either or both parties as he or she deems fit. The **Commissioner's** ability to render, and the effect of, a decision hereunder shall not be impaired by any negotiations in connection with the dispute presented, whether or not the **Commissioner** participated therein. The **Commissioner** may or, at the request of any party to the dispute, shall compel the participation of any **Other Contractor** with a contract related to the **Work** of this **Contract**, and that **Contractor** shall be bound by the decision of the **Commissioner**. Any **Other Contractor** thus brought into the dispute resolution proceeding shall have the same rights and obligations under this Article 27 as the **Contractor** initiating the dispute.

27.4.2 **Commissioner Determination.** Within thirty (30) **Days** after the receipt of all materials and information, or such longer time as may be agreed to by the parties, the **Commissioner** shall make his or her determination and shall deliver or send a copy of such determination to the **Contractor**, the **ACCO**, and **Engineer, Resident Engineer, Engineering Audit Officer**, or other designee of the **Commissioner**, as applicable, together with a statement concerning how the decision may be appealed.

27.4.3 **Finality of Commissioner's Decision.** The **Commissioner's** decision shall be final and binding on all parties, unless presented to the Contract Dispute Resolution Board pursuant to this Article 27. The **City** may not take a petition to the Contract Dispute Resolution Board. However, should the **Contractor** take such a petition, the **City** may seek, and the Contract Dispute Resolution Board may render, a determination less favorable to the **Contractor** and more favorable to the **City** than the decision of the **Commissioner**.

27.5 **Presentation of Dispute to the Comptroller.** Before any dispute may be brought by the **Contractor** to the Contract Dispute Resolution Board, the **Contractor** must first present its claim to the **Comptroller** for his or her review, investigation, and possible adjustment.

27.5.1 **Time, Form, and Content of Notice.** Within thirty (30) **Days** of its receipt of a decision by the **Commissioner**, the **Contractor** shall submit to the **Comptroller** and to the **Commissioner** a Notice of Claim regarding its dispute with the **Agency**. The Notice of Claim shall consist of (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written decision of the **Commissioner**; and (iii) a copy of all materials submitted by the **Contractor** to the **Agency**, including the Notice of Dispute. The **Contractor** may not present to the **Comptroller** any material not presented to the **Commissioner**, except at the request of the **Comptroller**.

27.5.2 Response. Within thirty (30) **Days** of receipt of the Notice of Claim, the **Agency** shall make available to the **Comptroller** a copy of all material submitted by the **Agency** to the **Commissioner** in connection with the dispute. The **Agency** may not present to the **Comptroller** any material not presented to the **Commissioner** except at the request of the **Comptroller**.

27.5.3 **Comptroller** Investigation. The **Comptroller** may investigate the claim in dispute and, in the course of such investigation, may exercise all powers provided in Sections 7-201 and 7-203 of the Administrative Code. In addition, the **Comptroller** may demand of either party, and such party shall provide, whatever additional material the **Comptroller** deems pertinent to the claim, including original business records of the **Contractor**. Willful failure of the **Contractor** to produce within fifteen (15) **Days** any material requested by the **Comptroller** shall constitute a waiver by the **Contractor** of its claim. The **Comptroller** may also schedule an informal conference to be attended by the **Contractor**, **Agency** representatives, and any other personnel desired by the **Comptroller**.

27.5.4 Opportunity of **Comptroller** to Compromise or Adjust Claim. The **Comptroller** shall have forty-five (45) **Days** from his or her receipt of all materials referred to in Article 27.5.3 to investigate the disputed claim. The period for investigation and compromise may be further extended by agreement between the **Contractor** and the **Comptroller**, to a maximum of ninety (90) **Days** from the **Comptroller's** receipt of all materials. The **Contractor** may not present its petition to the Contract Dispute Resolution Board until the period for investigation and compromise delineated in this Article 27.5.4 has expired. In compromising or adjusting any claim hereunder, the **Comptroller** may not revise or disregard the terms of the **Contract** between the parties.

27.6 Contract Dispute Resolution Board. There shall be a Contract Dispute Resolution Board composed of:

27.6.1 The chief administrative law judge of the Office of Administrative Trials and Hearings (OATH) or his/her designated OATH administrative law judge, who shall act as chairperson, and may adopt operational procedures and issue such orders consistent with this Article 27 as may be necessary in the execution of the Contract Dispute Resolution Board's functions, including, but not limited to, granting extensions of time to present or respond to submissions;

27.6.2 The **CCPO** or his/her designee; any designee shall have the requisite background to consider and resolve the merits of the dispute and shall not have participated personally and substantially in the particular matter that is the subject of the dispute or report to anyone who so participated; and

27.6.3 A person with appropriate expertise who is not an employee of the **City**. This person shall be selected by the presiding administrative law judge from a prequalified panel of individuals, established and administered by OATH with appropriate background to act as decision-makers in a dispute. Such individual may not have a contract or dispute with the **City** or be an officer or employee of any company or organization that does, or regularly represents persons, companies, or organizations having disputes with the **City**.

27.7 Petition to the Contract Dispute Resolution Board. In the event the claim has not been settled or adjusted by the **Comptroller** within the period provided in this Article 27, the **Contractor**,

within thirty (30) **Days** thereafter, may petition the Contract Dispute Resolution Board to review the **Commissioner's** determination.

27.7.1 **Form and Content of Petition by Contractor.** The **Contractor** shall present its dispute to the Contract Dispute Resolution Board in the form of a petition, which shall include (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed, and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written Decision of the **Commissioner**, (iii) copies of all materials submitted by the **Contractor** to the Agency; (iv) a copy of the written decision of the **Comptroller**, if any, and (v) copies of all correspondence with, or written material submitted by the **Contractor**, to the **Comptroller**. The **Contractor** shall concurrently submit four (4) complete sets of the Petition: one set to the **City Corporation Counsel** (Attn: Commercial and Real Estate Litigation Division) and three (3) sets to the Contract Dispute Resolution Board at OATH's offices with proof of service on the **City Corporation Counsel**. In addition, the **Contractor** shall submit a copy of the written statement of the substance of the dispute, cited in (i) above, to both the **Commissioner** and the **Comptroller**.

27.7.2 **Agency Response.** Within thirty (30) **Days** of its receipt of the Petition by the **City Corporation Counsel**, the **Agency** shall respond to the brief written statement of the **Contractor** and make available to the Contract Dispute Resolution Board all material it submitted to the **Commissioner** and **Comptroller**. Three (3) complete copies of the **Agency** response shall be provided to the Contract Dispute Resolution Board and one to the **Contractor**. Extensions of time for submittal of the **Agency** response shall be given as necessary upon a showing of good cause or, upon consent of the parties, for an initial period of up to thirty (30) **Days**.

27.7.3 **Further Proceedings.** The Contract Dispute Resolution Board shall permit the **Contractor** to present its case by submission of memoranda, briefs, and oral argument. The Contract Dispute Resolution Board shall also permit the **Agency** to present its case in response to the **Contractor** by submission of memoranda, briefs, and oral argument. If requested by the **City Corporation Counsel**, the **Comptroller** shall provide reasonable assistance in the preparation of the **Agency's** case. Neither the **Contractor** nor the **Agency** may support its case with any documentation or other material that was not considered by the **Comptroller**, unless requested by the Contract Dispute Resolution Board. The Contract Dispute Resolution Board, in its discretion, may seek such technical or other expert advice as it shall deem appropriate and may seek, on its own or upon application of a party, any such additional material from any party as it deems fit. The Contract Dispute Resolution Board, in its discretion, may combine more than one dispute between the parties for concurrent resolution.

27.7.4 **Contract Dispute Resolution Board Determination.** Within forty-five (45) **Days** of the conclusion of all written submissions and oral arguments, the Contract Dispute Resolution Board shall render a written decision resolving the dispute. In an unusually complex case, the Contract Dispute Resolution Board may render its decision in a longer period, not to exceed ninety (90) **Days**, and shall so advise the parties at the commencement of this period. The Contract Dispute Resolution Board's decision must be consistent with the terms of the **Contract**. Decisions of the Contract Dispute Resolution Board shall only resolve matters before the Contract Dispute Resolution Board and shall not have precedential effect with respect to matters not before the Contract Dispute Resolution Board.

27.7.5 Notification of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board shall send a copy of its decision to the **Contractor**, the **ACCO**, the Engineer, the **Comptroller**, the City Corporation Counsel, the CCPO, and the **PPB**. A decision in favor of the **Contractor** shall be subject to the prompt payment provisions of the **PPB** Rules. The Required Payment Date shall be thirty (30) Days after the date the parties are formally notified of the Contract Dispute Resolution Board's decision.

27.7.6 Finality of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board's decision shall be final and binding on all parties. Any party may seek review of the Contract Dispute Resolution Board's decision solely in the form of a challenge, filed within four (4) months of the date of the Contract Dispute Resolution Board's decision, in a court of competent jurisdiction of the State of New York, County of New York pursuant to Article 78 of the Civil Practice Law and Rules. Such review by the court shall be limited to the question of whether or not the Contract Dispute Resolution Board's decision was made in violation of lawful procedure, was affected by an error of **Law**, or was arbitrary and capricious or an abuse of discretion. No evidence or information shall be introduced or relied upon in such proceeding that was not presented to the Contract Dispute Resolution Board in accordance with this Article 27.

27.8 Any termination, cancellation, or alleged breach of the **Contract** prior to or during the pendency of any proceedings pursuant to this Article 27 shall not affect or impair the ability of the **Commissioner** or Contract Dispute Resolution Board to make a binding and final decision pursuant to this Article 27.

ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK OR WORK ON A TIME & MATERIALS BASIS

28.1 While the **Contractor** or any of its **Subcontractors** is performing **Work** on a time and material basis or **Extra Work** on a time and material basis ordered by the **Commissioner** under Article 25, or where the **Contractor** believes that it or any of its **Subcontractors** is performing **Extra Work** but a final determination by **Agency** has not been made, or the **Contractor** or any of its **Subcontractors** is performing disputed **Work** (whether on or off the **Site**), or complying with a determination or order under protest in accordance with Articles 11, 27, and 30, in each such case the **Contractor** shall furnish the **Resident Engineer** daily with three (3) copies of written statements signed by the **Contractor's** representative at the **Site** showing:

28.1.1 The name, trade, and number of each worker employed on such **Work** or engaged in complying with such determination or order, the number of hours employed, and the character of the **Work** each is doing; and

28.1.2 The nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such **Work** or compliance with such determination or order, and from whom purchased or rented.

28.2 A copy of such statement will be countersigned by the **Resident Engineer**, noting thereon any items not agreed to or questioned, and will be returned to the **Contractor** within two (2) **Days** after submission.

28.3 The **Contractor** and its **Subcontractors**, when required by the **Commissioner**, or the **Comptroller**, shall also produce for inspection, at the office of the **Contractor** or **Subcontractor**, any and all of its books, bid documents, financial statements, vouchers, records, daily job diaries and reports,

and cancelled checks, and any other documents relating to showing the nature and quantity of the labor, materials, plant and equipment actually used in the performance of such **Work**, or in complying with such determination or order, and the amounts expended therefor, and shall permit the **Commissioner** and the **Comptroller** to make such extracts therefrom, or copies thereof, as they or either of them may desire.

28.4 In connection with the examination provided for herein, the **Commissioner**, upon demand therefor, will produce for inspection by the **Contractor** such records as the **Agency** may have with respect to such **Extra Work** or disputed **Work** performed under protest pursuant to order of the **Commissioner**, except those records and reports which may have been prepared for the purpose of determining the accuracy and validity of the **Contractor's** claim.

28.5 Failure to comply strictly with these requirements shall constitute a waiver of any claim for extra compensation or damages on account of the performance of such **Work** or compliance with such determination or order.

ARTICLE 29. OMITTED WORK

29.1 If any **Contract Work** in a lump sum **Contract**, or if any part of a lump sum item in a unit price, lump sum, or percentage-bid **Contract** is omitted by the **Commissioner** pursuant to Article 33, the **Contract** price, subject to audit by the EAO, shall be reduced by a pro rata portion of the lump sum bid amount based upon the percent of **Work** omitted subject to Article 29.4. For the purpose of determining the pro rata portion of the lump sum bid amount, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be the determining factor.

29.2 If the whole of a lump sum item or units of any other item is so omitted by the **Commissioner** in a unit price, lump sum, or percentage-bid **Contract**, then no payment will be made therefor except as provided in Article 29.4.

29.3 For units that have been ordered but are only partially completed, the unit price shall be reduced by a pro rata portion of the unit price bid based upon the percentage of **Work** omitted subject to Article 29.4.

29.4 In the event the **Contractor**, with respect to any omitted **Work**, has purchased any non-cancelable material and/or equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated into the **Work**, the **Contractor** shall be paid for such material and/or equipment in accordance with Article 64.2.1(b); provided, however, such payment is contingent upon the **Contractor's** delivery of such material and/or equipment in acceptable condition to a location designated by the **City**.

29.5 The **Contractor** agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted **Work**.

ARTICLE 30. NOTICE AND DOCUMENTATION OF COSTS AND DAMAGES; PRODUCTION OF FINANCIAL RECORDS

30.1 If the **Contractor** shall claim to be sustaining damages by reason of any act or omission of the **City** or its agents, it shall submit to the **Commissioner** within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter 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 PSL 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 PSL 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 PSL 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 PSL and Rules.

35.5.1(e) The PSL is summarized below for the convenience of the **Contractor**. The **Contractor** is advised to review the PSL and Rules in their entirety. On the website www.nyc.gov/PaidSickLeave there are links to the PSL 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 PSL. The **Contractor** acknowledges that it is responsible for compliance with the PSL notwithstanding any inconsistent language contained herein.

35.5.2 Pursuant to the PSL 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 PSL ("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 PSL 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 PSL. 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 PSL 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 PSL 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 PSL 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 PSL 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 Policies 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 **Contract** and this Article 35.6 (1) by not enrolling its business with HireNYC; (2) by not informing HireNYC, as required, of open positions; or (3) by failing to interview a qualified candidate, the **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 assess, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

69.3.1(i) appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 69 is in violation thereof, the **Agency** shall review such information and give the **Contractor** an opportunity to respond. If the **Agency** finds that a violation has occurred, the **Agency** shall have the right to declare the **Contractor** in default and/or terminate this **Contract** for cause and procure supplies, services or **Work** from another source in the manner the **Agency** deems proper. In the event of such termination, the **Contractor** shall pay to the **Agency**, or the **Agency** in its sole discretion may withhold from any amounts otherwise payable to the **Contractor**, the difference between the **Contract** price for the uncompleted portion of this **Contract** and the cost to the **Agency** of completing performance of this **Contract** either itself or by engaging another **Contractor** or **Contractors**. In the case of a requirement **Contract**, the **Contractor** shall be liable for such difference in price for the entire amount of supplies required by the **Agency** for the uncompleted term of **Contractor's Contract**. In the case of a construction **Contract**, the **Agency** shall also have the right to hold the **Contractor** in partial or total default in accordance with the default provisions of this **Contract**, and/or may seek debarment or suspension of the **Contractor**. The rights and remedies of the **Agency** hereunder shall be in addition to, and not in lieu of, any rights and remedies the **Agency** has pursuant to this **Contract** or by operation of **Law**.

ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB

70.1 The **Contractor** shall electronically file all alteration type-2 and alteration type-3 applications via the New York City Development Hub Web site, except applications for the following types of minor alterations: enlargements, curb cuts, legalizations, fire alarms, builders pavement plans, and jobs filed on Landmark Preservation Commission calendared properties. All such filings must be professionally certified. Information about electronic filing via the New York City Development Hub is available on the City Department of Buildings Web site at www.nyc.gov/buildings.

ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS

71.1 Tropical hardwoods, as defined in Section 165 of the New York State Finance Law (Finance Law), shall not be utilized in the performance of this **Contract** except as expressly permitted by Section 165 of the Finance Law.

ARTICLE 72. CONFLICTS OF INTEREST

72.1 Section 2604 of the City Charter and other related provisions of the City Charter, the Administrative Code, and the Penal Law are applicable under the terms of this **Contract** in relation to conflicts of interest and shall be extended to **Subcontractors** authorized to perform **Work**, labor and services pursuant to this **Contract** and further, it shall be the duty and responsibility of the **Contractor** to so inform its respective **Subcontractors**. Notice is hereby given that, under certain circumstances, penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

ARTICLE 73. MERGER CLAUSE

73.1 The written **Contract** herein, contains all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this **Contract** shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 74. STATEMENT OF WORK

74.1 The **Contractor** shall furnish all labor and materials and perform all **Work** in strict accordance with the **Specifications** and **Addenda** thereto, numbered 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: Lorraine Gallo
Commissioner

CONTRACTOR:

C.D.E. Air Conditioning Co., Inc.

By: Joseph F. Azara
(Member of Firm or Officer of Corporation)
Joseph F. Azara

Title: President

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

Brian J. Azara
Secretary
Brian J. Azara, Secretary

(Seal)



ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:

On this 3rd day of Sept., 2020, before me personally came Joseph F. Azara to me known who, being by me duly sworn did depose and say that he resides at 215 Howard Avenue, Staten Island, New York 10301 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.

Robert J. Ayoub
Notary Public or Commissioner of Deeds

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

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

AUTHORITY

MAYOR'S CERTIFICATE NO. CBX
BUDGET DIRECTOR'S CERTIFICATE NO.

DATED
DATED

APPROPRIATION
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101 of the Administrative Code of the City of New York, it is hereby certified that the estimated cost of the work, materials and supplies required by the within Contract, amounting to

two million six hundred eight thousand
seven hundred fifty-four

Dollars (\$ 2,608,754.00)

is chargeable to the fund of the Department of Design and Construction entitled Code
PV274CHLL

Department of Design and Construction

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



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.

PERFORMANCE BOND #1 (Page 1)

PERFORMANCE BOND #1

Bond No. 015211860

KNOW ALL PERSONS BY THESE PRESENTS,;

That we, C.D.E. Air Conditioning Co., Inc.
321 39th Street
Brooklyn, NY 11232

hereinafter referred to as the "Principal,"
and, Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116

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 Two Million Six Hundred Eight Thousand Seven Hundred Fifty-Four and 00/100

(\$ 2,608,754.00) 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 Chiller Replacement and BMS Upgrade - Borough of Queens; FMS ID: PV274CHLL

E-PIN: 85020B0036001; DDC PIN: 8502020PV0001C

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

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

Performance Bond #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.

PERFORMANCE BOND #1 (Page 2)

good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (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.

PERFORMANCE BOND #1 (Page 3)

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

_____ 2nd _____ day of _____ September _____, 20 20 _____.

(Seal)



C.D.E. Air Conditioning Co., Inc. _____ (L.S.)
Principal

By: _____
Joseph F. Azara, President

Surety: Liberty Mutual Insurance Company

(Seal)

By: _____
Andrea E. Gorbert, Attorney-In-Fact

Surety

By: _____

Surety

By: _____

Surety

By: _____

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.

PERFORMANCE BOND #1 (Page 4)


ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of New York County of Kings ss:

On this 3rd day of September, 2020 before me personally came Joseph F. Azara,

to me known, who, being by me duly sworn did depose and say that he/she resides at 215 Howard Avenue

Staten Island, NY 10301; that he/she is the C.D.E. Air Conditioning Co., Inc. 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.


Notary Public or Commissioner of Deeds.

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

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.

CITY OF NEW YORK
DDC

103

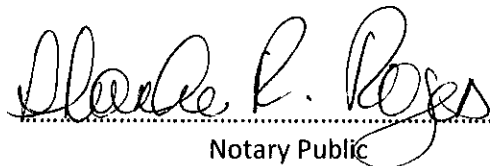
STANDARD CONSTRUCTION CONTRACT
March 2017

ACKNOWLEDGMENT OF SURETY COMPANY

STATE OF NEW YORK

COUNTY OF NASSAU

On this 2nd day of **September, 2020**, before me personally came **Andrea E. Gorbert** to me known, who, being by me duly sworn, did depose and say; that she is the Attorney-in-Fact of **Liberty Mutual Insurance Company**, the corporation described in which executed the above instrument; that she knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by the Board of Directors of said corporation; and that she signed her name thereto by the authority of the Power of Attorney of said Company, of which a Certified Copy is hereto attached, and that she signed said Instrument as an Attorney-in-Fact of said company by like authority.


Notary Public

SHARLINE R. ROGERS
NOTARY PUBLIC, State of New York
No. 01RO6204400
Qualified in Queens County
Commission Expires April 20, 2021



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

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

Certificate No: 8201166-985164

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Theresa J. Foley; Andrea E. Gorbert; Michael Marino; Kevin T. Walsh, Jr.

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 29th day of April, 2019.



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

By: David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 29th day of April, 2019 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

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



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

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

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

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

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

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

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 2nd day of September, 2020.



By: Renee C. Llewellyn, Assistant Secretary

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

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



LIBERTY MUTUAL INSURANCE COMPANY
FINANCIAL STATEMENT — DECEMBER 31, 2019

Assets		Liabilities	
Cash and Bank Deposits	\$778,754,989	Unearned Premiums	\$8,007,146,482
*Bonds — U.S Government	2,780,808,610	Reserve for Claims and Claims Expense	21,532,853,787
*Other Bonds	12,645,608,792	Funds Held Under Reinsurance Treaties	507,868,920
*Stocks	16,385,435,431	Reserve for Dividends to Policyholders	1,143,826
Real Estate	235,608,378	Additional Statutory Reserve	125,722,000
Agents' Balances or Uncollected Premiums	6,217,983,641	Reserve for Commissions, Taxes and	
Accrued Interest and Rents	102,273,390	Other Liabilities	4,117,460,075
Other Admitted Assets	11,957,106,292	Total	\$34,292,195,090
		Special Surplus Funds	\$32,768,443
		Capital Stock	10,000,075
		Paid in Surplus	10,044,978,933
		Unassigned Surplus	6,723,636,983
Total Admitted Assets	<u>\$51,103,579,523</u>	Surplus to Policyholders	16,811,384,434
		Total Liabilities and Surplus	<u>\$51,103,579,524</u>



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

I, TIM MIKOLAJEWSKI, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the foregoing is a true, and correct statement of the Assets and Liabilities of said Corporation, as of December 31, 2019, to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at Seattle, Washington, this 27th day of March, 2020.

T. Mikolajewski

Assistant Secretary



Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

Bond No. 015211860

PAYMENT BOND (Page 1)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we, C.D.E. Air Conditioning Co., Inc.

321 39th Street

Brooklyn, NY 11232

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

175 Berkeley Street

Boston, MA 02116

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

Two Million Six Hundred Eight Thousand Seven Hundred Fifty-Four and 00/100

(\$2,608,754.00) 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

Chiller Replacement and BMS Upgrade - Borough of Queens; FMS ID: PV274CHLL

E-PIN: 85020B0036001; DDC PIN: 8502020PV0001C

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

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so engaged who perform the work of laborers or mechanics at or in the vicinity of the site

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 2)

of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be placed in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, Subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 2nd day of September, 2020.



(Seal)

C.D.E. Air Conditioning Co., Inc. (L.S.)
Principal

By: Joseph F. Azara
Joseph F. Azara, President



(Seal)

Liberty Mutual Insurance Company
Surety

By: Andrea E. Gorbert
Andrea E. Gorbert, Attorney-In-Fact

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.

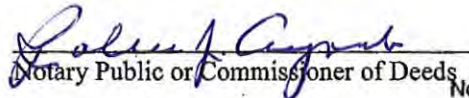
Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:

On this 3rd day of Sept., 2020, before me personally came Joseph F. Azara to me known, who, being by me duly sworn did depose and say that he resides at 215 Howard Avenue, Staten Island, New York 10301 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. * C.D.E. Air Conditioning Co., Inc.


Notary Public or Commissioner of Deeds

ROBERT J. AYOUB
Notary Public, State of New York
No. 01AY4893555
Qualified in Kings County
Commission Expires May 11, 2023

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

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

Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

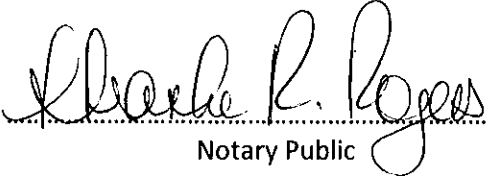
Affix Acknowledgments and Justification of Sureties.

ACKNOWLEDGMENT OF SURETY COMPANY

STATE OF NEW YORK

COUNTY OF NASSAU

On this 2nd day of **September, 2020**, before me personally came **Andrea E. Gorbert** to me known, who, being by me duly sworn, did depose and say; that she is the Attorney-in-Fact of **Liberty Mutual Insurance Company**, the corporation described in which executed the above instrument; that she knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by the Board of Directors of said corporation; and that she signed her name thereto by the authority of the Power of Attorney of said Company, of which a Certified Copy is hereto attached, and that she signed said Instrument as an Attorney-in-Fact of said company by like authority.


Notary Public

SHARLINE R. ROGERS
NOTARY PUBLIC, State of New York
No. 01RO6204400
Qualified in Queens County
Commission Expires April 20, 2021



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

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

Certificate No: 8201166-985164

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Theresa J. Foley; Andrea E. Gorbart; Michael Marino; Kevin T. Walsh, Jr.

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 29th day of April, 2019.



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

By: David M. Carey, Assistant Secretary

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

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 29th day of April, 2019 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

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



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

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

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

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

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

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

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 2nd day of September, 2020.



By: Renee C. Llewellyn, Assistant Secretary

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



LIBERTY MUTUAL INSURANCE COMPANY
FINANCIAL STATEMENT — DECEMBER 31, 2019

Assets		Liabilities	
Cash and Bank Deposits	\$778,754,989	Unearned Premiums	\$8,007,146,482
*Bonds — U.S Government	2,780,808,610	Reserve for Claims and Claims Expense	21,532,853,787
*Other Bonds	12,645,608,792	Funds Held Under Reinsurance Treaties	507,868,920
*Stocks	16,385,435,431	Reserve for Dividends to Policyholders	1,143,826
Real Estate	235,608,378	Additional Statutory Reserve	125,722,000
Agents' Balances or Uncollected Premiums	6,217,983,641	Reserve for Commissions, Taxes and	
Accrued Interest and Rents	102,273,390	Other Liabilities	4,117,460,075
Other Admitted Assets	11,957,106,292	Total	\$34,292,195,090
		Special Surplus Funds	\$32,768,443
		Capital Stock	10,000,075
		Paid in Surplus	10,044,978,933
		Unassigned Surplus	6,723,636,983
		Surplus to Policyholders	16,811,384,434
Total Admitted Assets	<u>\$51,103,579,523</u>	Total Liabilities and Surplus	<u>\$51,103,579,524</u>



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

I, TIM MIKOLAJEWSKI, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the foregoing is a true, and correct statement of the Assets and Liabilities of said Corporation, as of December 31, 2019, to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at Seattle, Washington, this 27th day of March, 2020.

T. Mikolajewski

Assistant Secretary



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/16/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER USI Insurance Services LLC 333 Westchester Ave, Suite 102 White Plains, NY 10604 914 459-6200	CONTACT NAME: Matthew Anderson PHONE (A/C, No, Ext): 914 459-6200 FAX (A/C, No): 610 537-4220 E-MAIL ADDRESS: matthew.anderson@usi.com														
INSURED C.D.E. Air Conditioning Co., Inc. 321 39th St. Brooklyn, NY 11232	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">INSURER(S) AFFORDING COVERAGE</th> <th style="width: 20%;">NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : Travelers Property Cas. Co. of America</td> <td style="text-align: center;">25674</td> </tr> <tr> <td>INSURER B : Philadelphia Indemnity Insurance Co.</td> <td style="text-align: center;">18058</td> </tr> <tr> <td>INSURER C : Liberty Insurance Underwriters, Inc.</td> <td style="text-align: center;">19917</td> </tr> <tr> <td>INSURER D : Travelers Indemnity Company</td> <td style="text-align: center;">25658</td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Travelers Property Cas. Co. of America	25674	INSURER B : Philadelphia Indemnity Insurance Co.	18058	INSURER C : Liberty Insurance Underwriters, Inc.	19917	INSURER D : Travelers Indemnity Company	25658	INSURER E :		INSURER F :	
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COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> BI/PD Ded:15000 <input checked="" type="checkbox"/> Contractual Liab. GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			DT1NCO0L936869TIL2	09/13/2020	09/13/2021	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000 \$
D	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			BA4N1759542026G	09/13/2020	09/13/2021	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10000			CUP1L5916152026	09/13/2020	09/13/2021	EACH OCCURRENCE \$ 3,000,000 AGGREGATE \$ 3,000,000 \$ PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N N / A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						
B	Excess Liability			PHUB737896	09/13/2020	09/13/2021	\$5,000,000 EACH OCC/AGG
C	Excess Liability			100036219102	09/13/2020	09/13/2021	\$3,000,000 EACH OCC/AGG

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: FMS ID: PV274CHLL, E-PIN: 85020B0036001, DDC PIN: 8502020PV0001C, CHILLER REPLACEMENT AND BMS UPGRADE BOROUGH OF QUEENS.

The General Liability policy includes an automatic Additional Insured endorsement that provides Additional Insured status to City of New York, including is officials and employees, only when there is a written (See Attached Descriptions)

CERTIFICATE HOLDER <p style="text-align: center;">New York City Department of Design & Construction 30-30 Thomson Avenue Long Island City, NY 11101</p>	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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DESCRIPTIONS (Continued from Page 1)

contract that requires such status, and only with regard to work performed on behalf of the named insured. The General Liability policy contains a special endorsement with Primary and Noncontributory wording, when required by written contract. The General Liability policy provides a Blanket Waiver of Subrogation when required by written contract, except as prohibited by law.

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.

USI Insurance Services, LLC

[Name of broker or agent (typewritten)]

333 Westchester Avenue, White Plains, NY 10604

[Address of broker or agent (typewritten)]

matthew.anderson@usi.com

[Email address of broker or agent (typewritten)]

(914) 459-6280

[Phone number/Fax number of broker or agent (typewritten)]

Matthew Anderson

[Signature of authorized official, broker, or agent]

Matthew Anderson, Account Manager

[Name and title of authorized official, broker, or agent (typewritten)]

State of New York.....)

County of Westchester.....) ss.:

Sworn to before me this 16th day of September 2020

Maureen A. Kittrick
New York

NOTARY PUBLIC FOR THE STATE OF

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01K14986881
COMMISSION EXPIRES 09-30-2021

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Names of Additional Insured Person(s) or Organization(s):

**THE CITY OF NEW YORK,
(CONTINUED ON CG T8 06)**

Location of Covered Operations:

SEE CG T8 06

NY

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

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

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

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

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

This insurance does not apply to "bodily injury" or "property damage" occurring, or "personal injury" or "advertising injury" arising out of an offense committed, after:

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

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

ADDITIONAL INSURED - CONTINUED

THIS ENDORSEMENT MODIFIES INSURANCE PROVIDED UNDER THE FOLLOWING:
COMMERCIAL GENERAL LIABILITY COVERAGE PART

AMENDING SCHEDULE OF CG D3 61 03 05 "ADDITIONAL INSURED - OWNERS, LESSEES OR
CONTRACTORS - SCHEDULED PERSON OR ORGANIZATION", NAMES OF PERSON OR
ORGANIZATION TO INCLUDE:

CITY OF NEW YORK, INCLUDING ITS OFFICIALS AND EMPLOYEES

LOCATION OF COVERED OPERATIONS:

M 2 020 00 00 02020 000
M M
0 r

POLICY NUMBER: DT-CO-0L936869-TIL-20

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

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

THE CITY OF NEW YORK
(CONTINUED ON CG T8 05)

Location And Description Of Completed Operations

SEE CG T8 05

NY

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

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

location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

ADDITIONAL INSURED - CONTINUED

THIS ENDORSEMENT MODIFIES INSURANCE PROVIDED UNDER THE FOLLOWING:
COMMERCIAL GENERAL LIABILITY COVERAGE PART

AMENDING SCHEDULE OF CG 20 37 07 04 "ADDITIONAL INSURED - OWNERS, LESSEES OR
CONTRACTORS - COMPLETED OPERATIONS", NAME OF PERSON OR ORGANIZATION TO
INCLUDE:

CITY OF NEW YORK, INCLUDING ITS OFFICIALS AND EMPLOYEES

LOCATION OF COVERED OPERATIONS:

M 2 020 00 00 02020 000
M M
0 r

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:

THE CITY OF NEW YORK, INCLUDING ITS OFFICIALS AND EMPLOYEES

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

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of **Section IV – Conditions:**

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or

damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.



New York State Insurance Fund

199 CHURCH STREET, NEW YORK, N.Y. 10007-1100

| nysif.com

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

***** 112217107

C. D. E. AIR-CONDITIONING CO.,INC.
321 39TH STREET
BROOKLYN NY 11232



SCAN TO VALIDATE
AND SUBSCRIBE

POLICYHOLDER C. D. E. AIR-CONDITIONING CO.,INC. 321 39TH STREET BROOKLYN NY 11232	CERTIFICATE HOLDER NYC DEPARTMENT OF DESIGN AND CONSTRUCTION 30-30 THOMSON AVENUE LONG ISLAND CITY NY 11101
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POLICY NUMBER G 1101 202-8	CERTIFICATE NUMBER 1612	POLICY PERIOD 05/01/2020 TO 05/01/2021	DATE 03/18/2020
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THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 1101 202-8, 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](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 CERTIFICATE DOES NOT APPLY TO THOSE JOB SITES WHICH ARE COVERED BY OTHER INSURANCE AND ARE SPECIFICALLY EXCLUDED BY ENDORSEMENT.

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: 422308883





**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

<p>1a. Legal Name & Address of Insured (use street address only)</p> <p>CDE AIR CONDITIONING CO., INC. 321 39TH ST BROOKLYN, NY 11232</p> <p><i>Work Location of Insured (Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)</i></p>	<p>1b. Business Telephone Number of Insured</p> <p>718-788-1040</p> <p>1c. Federal Employer Identification Number of Insured or Social Security Number</p> <p>112217107</p>
<p>2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</p> <p>New York City Department of Design and Construction 30-30 Thomson Ave. Long Island City, NY 11101</p>	<p>3a Name of Insurance Carrier</p> <p>HARTFORD LIFE AND ACCIDENT</p> <p>3b Policy Number of Entity Listed in Box "1a"</p> <p>0DB099080</p> <p>3c Policy effective period</p> <p>10-01-2020 to 09-30-2021</p>

4. Policy provides the following benefits:

A. Both disability and paid family leave benefits.
 B. Disability benefits only.
 C. Paid family leave benefits only.

5. Policy covers:

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 09-18-2020 *Elizabeth Tello*
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number (212) 553-8074 Name and Title: Elizabeth Tello – Assistant Director, Statutory Services

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.

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in Box 3 on this form is certifying that it is insuring the business referenced in box "1 a" for disability and/or paid family leave benefits under the New York State Disability and Paid Family Leave Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in Box 2.

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is cancelled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from coverage indicated on this Certificate. (These notices may be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in Box 3c, whichever is earlier

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Disability and/or Paid Family Leave Benefits contract of insurance only while the underlying policy is in effect.

Please Note: Upon the cancellation of the disability and/or paid family leave benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability and/or Paid Family Leave Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability and Paid Family Leave Benefits Law.

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

§220. Subd. 8

(a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand and twenty-one, the payment of family leave benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand eighteen, the payment of family leave benefits for all employees has been secured as provided by this article.

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
 CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

BOILERMAKER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Boilermaker (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$31.76

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$33.59

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$35.43

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$37.25

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$39.08

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$40.93

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$42.75

(Local #5)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

BRICKLAYER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Bricklayer (First 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.61

(Bricklayer District Council)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

CARPENTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 40% of Journeyman's rate

Supplemental Benefit Rate Per Hour For Building Apprentice: \$31.44

Supplemental Benefit Rate Per Hour For Heavy Apprentice: \$33.49

Carpenter (Second Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 50% of Journeyman's rate

Supplemental Benefit Rate Per Hour For Building Apprentice: \$31.44

Supplemental Benefit Rate Per Hour For Heavy Apprentice: \$33.49

Carpenter (Third Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 65% of Journeyman's rate

Supplemental Benefit Rate Per Hour For Building Apprentice: \$31.44

Supplemental Benefit Rate Per Hour For Heavy Apprentice: \$33.49

Carpenter (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 80% of Journeyman's rate

Supplemental Benefit Rate Per Hour For Building Apprentice: \$31.44

Supplemental Benefit Rate Per Hour For Heavy Apprentice: \$33.49

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS

(Ratio of Apprentice to Journeyman: 1 to 1, 2 to 5)

Carpenter - High Rise (First Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$17.52

Supplemental Benefit Rate per Hour: \$16.30

Carpenter - High Rise (Second Year)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$23.95
Supplemental Benefit Rate per Hour: \$16.43

Carpenter - High Rise (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$30.53
Supplemental Benefit Rate per Hour: \$16.56

Carpenter - High Rise (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$38.15
Supplemental Benefit Rate per Hour: \$16.71

(Carpenters District Council)

CEMENT MASON

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

Cement Mason (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Cement Mason (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Cement Mason (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

(Local #780)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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

Cement & Concrete Worker (First 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.00

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$25.45

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$26.95

Cement & Concrete Worker (Hired after 2/6/2016 - First 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 53% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$14.04

Cement & Concrete Worker (Hired after 2/6/2016 - Second 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 69% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$18.97

Cement & Concrete Worker (Hired after 2/6/2016 - Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.05

(Cement Concrete Workers District Council)

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$34.12

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$34.12

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$34.12

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$34.12

(Carpenters District Council)

ELECTRICIAN

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

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$15.75
Supplemental Benefit Rate per Hour: \$14.03
Overtime Supplemental Rate Per Hour: \$15.07

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$16.25
Supplemental Benefit Rate per Hour: \$14.28
Overtime Supplemental Rate Per Hour: \$15.36

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$17.25
Supplemental Benefit Rate per Hour: \$14.79
Overtime Supplemental Rate Per Hour: \$15.94

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$18.25
Supplemental Benefit Rate per Hour: \$15.30
Overtime Supplemental Rate Per Hour: \$16.51

Electrician (Third Term: 0-6 Months)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$19.25

Supplemental Benefit Rate per Hour: \$15.81

Overtime Supplemental Rate Per Hour: \$17.09

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$20.25

Supplemental Benefit Rate per Hour: \$16.32

Overtime Supplemental Rate Per Hour: \$17.67

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$21.25

Supplemental Benefit Rate per Hour: \$16.83

Overtime Supplemental Rate Per Hour: \$18.24

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$23.25

Supplemental Benefit Rate per Hour: \$17.85

Overtime Supplemental Rate Per Hour: \$19.39

Electrician (Fifth Term: 0-12 Months)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$24.50

Supplemental Benefit Rate per Hour: \$21.07

Overtime Supplemental Rate Per Hour: \$22.62

Electrician (Fifth Term: 13-18 Months)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$29.00

Supplemental Benefit Rate per Hour: \$23.43

Overtime Supplemental Rate Per Hour: \$25.26

Overtime Description

Overtime Wage paid at time and one half the regular rate

(Local #3)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

ELEVATOR CONSTRUCTOR

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$31.52

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$32.14

Elevator (Constructor) - Second Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Rate Per Hour: \$32.03

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Rate Per Hour: \$32.67

Elevator (Constructor) - Third Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$33.06

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$33.74

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$34.08

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$34.80

(Local #1)

ELEVATOR REPAIR & MAINTENANCE

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Per Hour: \$31.47

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Per Hour: \$32.09

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Benefit Per Hour: \$31.98

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Benefit Per Hour: \$32.62

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Per Hour: \$32.99

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Per Hour: \$33.67

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Benefit Per Hour: \$34.01

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Benefit Per Hour: \$34.73

(Local #1)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

ENGINEER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$25.38

Supplemental Benefit Rate per Hour: \$26.69

Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$31.72

Supplemental Benefit Rate per Hour: \$26.69

Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$34.89

Supplemental Benefit Rate per Hour: \$26.69

Engineer - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$38.06

Supplemental Benefit Rate per Hour: \$26.69

(Local #15)

ENGINEER - OPERATING

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour 40% of Journeyman's Rate

Supplemental Benefit Per Hour: \$22.45

Operating Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 50% of Journeyman's Rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Supplemental Benefit Per Hour: \$22.45

Operating Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: \$22.45

(Local #14)

FLOOR COVERER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$31.24

Floor Coverer (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$31.24

Floor Coverer (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$31.24

Floor Coverer (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$31.24

(Carpenters District Council)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

GLAZIER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Glazier (Second Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

Glazier (Third Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Glazier (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #1281)

HAZARDOUS MATERIAL HANDLER

(Ratio of Apprentice Journeyman: 1 to 1, 1 to 3)

Handler (First 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 78% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$14.25

Handler (Second 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 80% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$14.25

Handler (Third 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$14.25

Handler (Fourth 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 35% of Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

(Local #12)

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

House Wrecker - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$21.17
Supplemental Benefit Rate per Hour: \$19.09

House Wrecker - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$22.32
Supplemental Benefit Rate per Hour: \$19.09

House Wrecker - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$23.97
Supplemental Benefit Rate per Hour: \$19.09

House Wrecker - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$26.53
Supplemental Benefit Rate per Hour: \$19.09

(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: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$40.20

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$41.44

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$42.68

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$45.17

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$47.65

(Local #580)

IRON WORKER - STRUCTURAL

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$26.62
Supplemental Benefit Rate per Hour: \$53.09

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$27.22
Supplemental Benefit Rate per Hour: \$53.09

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$27.83
Supplemental Benefit Rate per Hour: \$53.09

(Local #40 and #361)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

**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: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 50% of Journeyperson's rate

Supplemental Rate Per Hour: \$44.48

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 60% of Journeyperson's rate

Supplemental Rate Per Hour: \$44.48

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 75% of Journeyperson's rate

Supplemental Rate Per Hour: \$44.48

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 90% of Journeyperson's rate

Supplemental Rate Per Hour: \$44.48

(Local #731)

MARBLE MECHANICS

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

Cutters & Setters - First 750 Hours

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Seventh 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Cutters & Setters - Eighth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Ninth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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

Cutters & Setters - Tenth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Polishers & Finishers - First 900 Hours

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

Polishers & Finishers - Third 900 Hours

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$21.39

Supplemental Benefit Rate per Hour: \$19.90

Mason Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$22.54

Supplemental Benefit Rate per Hour: \$19.90

Mason Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$24.29

Supplemental Benefit Rate per Hour: \$19.90

Mason Tender - Fourth Year

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$26.95**
Supplemental Benefit Rate per Hour: **\$19.90**

(Local #79)

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

Metallic Lather (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$23.04**
Supplemental Benefit Rate per Hour: **\$20.00**

Metallic Lather (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$28.38**
Supplemental Benefit Rate per Hour: **\$20.66**

Metallic Lather (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$34.68**
Supplemental Benefit Rate per Hour: **\$21.32**

Metallic Lather (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$37.18**
Supplemental Benefit Rate per Hour: **\$21.82**

(Local #46)

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Millwright (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$29.16
Supplemental Benefit Rate per Hour: \$34.66

Millwright (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$34.46
Supplemental Benefit Rate per Hour: \$38.31

Millwright (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$39.76
Supplemental Benefit Rate per Hour: \$42.61

Millwright (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$50.36
Supplemental Benefit Rate per Hour: \$49.27

(Local #740)

PAINTER

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

Painter - Brush & Roller - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$17.20
Supplemental Benefit Rate per Hour: \$15.05

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$21.50
Supplemental Benefit Rate per Hour: \$19.39

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$25.80**
Supplemental Benefit Rate per Hour: **\$22.79**

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$34.40**
Supplemental Benefit Rate per Hour: **\$29.16**

(District Council of Painters)

PAINTER - METAL POLISHER

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

Metal Polisher (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$13.00**
Supplemental Benefit Rate per Hour: **\$5.13**

Metal Polisher (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$13.00**
Supplemental Benefit Rate per Hour: **\$5.13**

Metal Polisher (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$15.75**
Supplemental Benefit Rate per Hour: **\$5.13**

(Local 8A-28)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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

Painters - Structural Steel (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #806)

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

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$28.86
Supplemental Benefit Rate per Hour: \$21.40

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$30.50
Supplemental Benefit Rate per Hour: \$21.40

(Local #1010)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

PLASTERER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$13.88

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyman's rate
Supplemental Rate Per Hour: \$14.36

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyman's rate
Supplemental Rate Per Hour: \$16.44

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$17.53

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Rate Per Hour: \$19.72

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$20.81

(Local #530)

PLASTERER - TENDER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Plasterer Tender - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$21.39**
Supplemental Benefit Rate per Hour: **\$19.90**

Plasterer Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$22.54**
Supplemental Benefit Rate per Hour: **\$19.90**

Plasterer Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$24.29**
Supplemental Benefit Rate per Hour: **\$19.90**

Plasterer Tender - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$26.95**
Supplemental Benefit Rate per Hour: **\$19.90**

(Local #79)

PLUMBER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$16.28**
Supplemental Benefit Rate per Hour: **\$5.43**

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$19.28**
Supplemental Benefit Rate per Hour: **\$6.43**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Plumber - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$27.23
Supplemental Benefit Rate per Hour: \$19.80

Plumber - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$29.33
Supplemental Benefit Rate per Hour: \$19.80

Plumber - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$32.18
Supplemental Benefit Rate per Hour: \$19.80

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$33.58
Supplemental Benefit Rate per Hour: \$19.80

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$45.65
Supplemental Benefit Rate per Hour: \$19.80

(Plumbers Local #1)

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

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$26.36
Supplemental Benefit Rate per Hour: \$14.00

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$29.42
Supplemental Benefit Rate per Hour: \$18.97

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$34.80
Supplemental Benefit Rate per Hour: \$21.72

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$41.93
Supplemental Benefit Rate per Hour: \$22.72

(Bricklayer District Council)

ROOFER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Roofers - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$3.36

Roofers - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$16.92

Roofers - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$20.29

Roofers - Fourth Year

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$25.37

(Local #8)

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

Sheet Metal Worker (0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: \$6.51

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: \$18.57

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: \$25.40

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.95

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.95

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$36.83

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Sheet Metal Worker (49-54 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Rate Per Hour: \$36.83

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$41.42

(Local #28)

SIGN ERECTOR

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyman's rate
Supplemental Rate Per Hour: \$15.75

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$17.86

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyman's rate
Supplemental Rate Per Hour: \$19.98

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$22.12

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.92

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$32.56

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$35.92

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$38.65

Sign Erector - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$41.33

Sign Erector - Sixth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$44.01

(Local #137)

STEAMFITTER

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

Steamfitter - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020

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

(Local #638)

STONE MASON - SETTER

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

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 80% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
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: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2019 - 6/30/2020
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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 40% of Journeyperson's rate

Supplemental Rate Per Hour: \$33.76

Timberperson - Second Year

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$33.76

Timberperson - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$33.76

Timberperson - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$33.76

(Local #1536)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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 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 § 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 New York State Labor Law section § 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public 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.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law § 220 (3-a) (a).

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

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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.

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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**ASBESTOS HANDLER
SEE HAZARDOUS MATERIAL HANDLER**

BLASTER

Blaster

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$55.86**

Supplemental Benefit Rate per Hour: **\$44.48**

Blaster- Hydraulic Trac Drill

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$50.00**

Supplemental Benefit Rate per Hour: **\$44.48**

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.17**

Supplemental Benefit Rate per Hour: **\$44.48**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$42.65**

Supplemental Benefit Rate per Hour: **\$44.48**

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$21.33**

Supplemental Benefit Rate per Hour: **\$44.48**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$59.17**

Supplemental Benefit Rate per Hour: **\$44.59**

Supplemental Note: For time and one half overtime - \$66.44 For double overtime - \$88.28

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Quadruple time the regular rate for work on the following holiday(s).
Labor Day

Paid Holidays

Good Friday
Day after Thanksgiving
Day before Christmas
Day before New Year's Day

Shift Rates

When shifts are required, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work seven and one-half (7 ½) hours and receive eight hours at the regular straight time hourly rate plus twenty-five cents (\$0.25) per hour. The third shift shall work seven (7) hours and receive eight hours at the regular straight time hourly rate plus fifty cents (\$0.50) per hour. A thirty (30) minute lunch period shall not be considered as time worked. Work in excess of the above shall be paid overtime at the appropriate new construction work or repair work overtime wage and supplemental benefit hourly rate.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$56.32**

Supplemental Benefit Rate per Hour: **\$33.11**

Overtime

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

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

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

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Thanksgiving Day
Christmas Day

Paid Holidays

None

Shift Rates

Overtime rates to be paid outside the regular scheduled work day.

(Bricklayer District Council)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$52.50**

Supplemental Benefit Rate per Hour: **\$46.38**

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 employer may work two (2) shifts with the first shift at the straight time wage rate starting at the established time between 7 a.m. and 9 a.m. The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight (8) hours pay for seven (7) hours of work, nine (9) hours pay for eight (8) hours of work.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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.

(Carpenters District Council)

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

Heavy Construction Work

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$54.68**

Supplemental Benefit Rate per Hour: **\$51.73**

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)

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

Carpenter High Rise A

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$50.78**
Supplemental Benefit Rate per Hour: **\$43.44**

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$40.19**
Supplemental Benefit Rate per Hour: **\$16.75**

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. There must be a first shift in order to work a second shift.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$50.50**

Supplemental Benefit Rate per Hour: **\$39.56**

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.

(Carpenters District Council)

CARPENTER - WOOD WATER STORAGE TANK

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Tank Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$34.14
Supplemental Benefit Rate per Hour: \$19.00

Tank Helper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$27.30
Supplemental Benefit Rate per Hour: \$19.00

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on 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.
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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$43.53

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: **\$28.95**

Supplemental Note: \$32.45 on Saturdays; \$35.95 on Sundays & Holidays

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$33.05**

Supplemental Benefit Rate per Hour: **\$20.95**

Supplemental Note: \$22.45 on Saturdays; \$23.95 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: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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.

Overtime Description

Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

Shift Rates

For an off shift day, (work at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential. Four Days a week at Ten (10)hour day.

(Local #780) (BCA)

CORE DRILLER

Core Driller

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$40.44**

Supplemental Benefit Rate per Hour: **\$26.70**

Core Driller Helper

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$32.12**

Supplemental Benefit Rate per Hour: **\$26.70**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$28.91**
Supplemental Benefit Rate per Hour: **\$26.70**

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$25.70**
Supplemental Benefit Rate per Hour: **\$26.70**

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$22.48**
Supplemental Benefit Rate per Hour: **\$26.70**

Overtime Description

Time and one half the regular rate for work on a holiday plus Holiday pay when worked.

Overtime

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

Paid Holidays

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

Shift Rates

The shift day shall be the continuous eight and one-half (8½) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (½) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents (\$0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$50.91

Supplemental Benefit Rate per Hour: \$54.11

Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. \$55.53 - 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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$42.59

Supplemental Benefit Rate per Hour: \$42.37

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$69.22**

Supplemental Benefit Rate per Hour: **\$51.73**

Diver Tender (Marine)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.14**

Supplemental Benefit Rate per Hour: **\$51.73**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$54.63**

Supplemental Benefit Rate per Hour: **\$51.73**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$43.84**

Supplemental Benefit Rate per Hour: **\$49.03**

Supplemental Note: Over 40 hours worked: at time and one half rate - \$19.80; at double time rate - \$26.40

Driver - Euclid & Turnpull Operator

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

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

Supplemental Benefit Rate per Hour: **\$49.03**

Supplemental Note: Over 40 hours worked: at time and one half rate - \$19.80; at double time rate - \$26.40

Overtime Description

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

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Paid Holidays

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Shift Rates

Off single shift work commencing between 6:00 P.M. and 5:00 A.M. shall work eight and one half (8 1/2) hours allowing for one half hour for lunch and be paid 117.3% of the straight time hourly wage rate.

Driver Redi-Mix (Sand & Gravel)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$39.00**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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

Overtime Description

For Paid Holidays: Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week.

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

President's Day

Columbus Day

Veteran's Day

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

New Year's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Election Day

Thanksgiving Day

Christmas Day

(Local #282)

ELECTRICIAN

(Including 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: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$56.00
Supplemental Benefit Rate per Hour: \$56.54

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$84.00
Supplemental Benefit Rate per Hour: \$60.07

Electrician "A" (Swing Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$65.71
Supplemental Benefit Rate per Hour: \$64.36

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$98.57
Supplemental Benefit Rate per Hour: \$68.51

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$73.60
Supplemental Benefit Rate per Hour: \$70.94

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$110.40
Supplemental Benefit Rate per Hour: \$75.59

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Christmas Day

Paid Holidays

None

Shift Rates

When so elected by the Employer, one or more shifts of at least five days duration may be scheduled as follows:
Day Shift: 8:00 am to 4:30 pm, Swing Shift 4:30 pm to 12:30 am, Graveyard Shift: 12:30 am to 8:00 am.

For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is \$24.92.

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$29.00**

Supplemental Benefit Rate per Hour: **\$23.43**

First and Second Year "M" Wage Rate Per Hour: **\$24.50**

First and Second Year "M" Supplemental Rate: **\$21.07**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$43.50**

Supplemental Benefit Rate per Hour: **\$25.26**

First and Second Year "M" Wage Rate Per Hour: **\$36.75**

First and Second Year "M" Supplemental Rate: **\$22.62**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 3/9/2020

Wage Rate per Hour: **\$33.40**

Supplemental Benefit Rate per Hour: **\$17.68**

Supplemental Note: \$16.06 only after 8 hours worked in a day

Effective Period: 3/10/2020 - 6/30/2020

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.

Double time the regular rate for Sunday.

Paid Holidays

New Year's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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

Shift Rates

Night Differential is based upon a ten percent (10%) differential between the hours of 4:00 P.M. and 12:30 A.M. and a fifteen percent (15%) differential for the hours 12:00 A.M. to 8:00 A.M.

Vacation

At least 1 year of employment.....ten (10) days
5 years or more of employment.....fifteen (15) days
10 years of employment.....twenty (20) days
Plus one Personal Day per year

Sick Days:

One day per Year. Up to 4 vacation days may be used as sick days.

(Local #3)

ELECTRICIAN-STREET LIGHTING WORKER

Electrician - Electro Pole Electrician

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$56.00
Supplemental Benefit Rate per Hour: \$58.44

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$42.66
Supplemental Benefit Rate per Hour: \$43.52

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$36.61
Supplemental Benefit Rate per Hour: \$39.16

Overtime Description

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 3/16/2020

Wage Rate per Hour: **\$66.95**

Supplemental Benefit Rate per Hour: **\$36.65**

Effective Period: 3/17/2020 - 6/30/2020

Wage Rate per Hour: **\$69.56**

Supplemental Benefit Rate per Hour: **\$37.47**

Overtime Description

For New Construction: work performed after 7 or 8 hour day, Saturday, Sunday or between 4:30pm and 7:00am shall be paid at double time rate.

Existing buildings: work performed after an 8 hour day, Saturday, Sunday or between 5:30pm and 7:00 am shall be paid time and one half.

Overtime

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 3/16/2020

Wage Rate per Hour: **\$52.44**

Supplemental Benefit Rate per Hour: **\$36.55**

Effective Period: 3/17/2020 - 6/30/2020

Wage Rate per Hour: **\$54.56**

Supplemental Benefit Rate per Hour: **\$37.37**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Afternoon shift - regularly hourly rate plus a (15%) fifteen percent differential. Graveyard shift - time and one half the regular rate.

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ENGINEER

Engineer - Heavy Construction Operating Engineer I

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$70.71**

Supplemental Benefit Rate per Hour: **\$39.74**

Supplemental Note: \$72.08 on overtime

Shift Wage Rate: **\$113.14**

Engineer - Heavy Construction Operating Engineer II

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$68.58**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$109.73**

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$65.00**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$104.00**

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$68.25**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$109.20**

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$90.00**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$144.00**

Engineer - Heavy Construction Maintenance Engineer III

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

On Generators, Light Towers

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$44.64**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$71.42**

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$45.83**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$73.33**

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$65.31**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$104.50**

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$61.05**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$97.68**

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$46.18**
Supplemental Benefit Rate per Hour: **\$39.74**
Supplemental Note: \$72.08 on overtime
Shift Wage Rate: **\$73.89**

Overtime Description

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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

Overtime

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

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

Paid Holidays

New Year's Day

Lincoln's Birthday

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Engineer - Building Work Maintenance Engineers I

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

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$48.26**

Supplemental Benefit Rate per Hour: **\$39.74**

Supplemental Note: \$72.08 on overtime

Engineer - Building Work Oilers I

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

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, Guniting Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2019 - 6/30/2020

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

Off Shift: double time the regular hourly rate.

(Local #15)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

ENGINEER - FIELD (HEAVY CONSTRUCTION)

(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)

Field Engineer - HC Party Chief

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$74.18**

Supplemental Benefit Rate per Hour: **\$36.51**

Supplemental Note: Overtime benefit rate - \$51.29 per hour (time & one half), \$66.07 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$54.47**

Supplemental Benefit Rate per Hour: **\$36.51**

Supplemental Note: Overtime benefit rate - \$51.29 per hour (time & one half), \$66.07 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$45.70**

Supplemental Benefit Rate per Hour: **\$36.51**

Supplemental Note: Overtime benefit rate - \$51.29 per hour (time & one half), \$66.07 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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

ENGINEER - FIELD (STEEL ERECTION)

Field Engineer - Steel Erection Party Chief

Effective Period: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$81.17**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$129.87**

Operating Engineer - Road & Heavy Construction II

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

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$84.01**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$134.42**

Operating Engineer - Road & Heavy Construction III

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$86.69**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$138.70**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$84.62**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$135.39**

Operating Engineer - Road & Heavy Construction V

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$82.96**
Supplemental Benefit Rate per Hour: **\$32.95**
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: **\$132.74**

Operating Engineer - Road & Heavy Construction VI

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$78.85**
Supplemental Benefit Rate per Hour: **\$32.95**
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: **\$126.16**

Operating Engineer - Road & Heavy Construction VII

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$63.81**
Supplemental Benefit Rate per Hour: **\$32.95**
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: **\$102.10**

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$49.67**
Supplemental Benefit Rate per Hour: **\$32.95**
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: **\$62.44**

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$75.02**
Supplemental Benefit Rate per Hour: **\$32.95**
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: **\$120.03**

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$69.01
Supplemental Benefit Rate per Hour: \$32.95
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: \$110.42

Operating Engineer - Road & Heavy Construction XI

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$53.74
Supplemental Benefit Rate per Hour: \$32.95
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: \$85.98

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$79.68
Supplemental Benefit Rate per Hour: \$32.95
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: \$127.49

Operating Engineer - Road & Heavy Construction XIII

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$77.19
Supplemental Benefit Rate per Hour: \$32.95
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: \$123.50

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$73.82
Supplemental Benefit Rate per Hour: \$32.95
Supplemental Note: \$59.95 overtime hours
Shift Wage Rate: \$118.11

Operating Engineer - Road & Heavy Construction XV

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.99**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: **\$79.98**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$70.53**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: **\$112.85**

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$71.06**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: **\$113.70**

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$101.71**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: **\$162.74**

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$78.85**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Shift Wage Rate: \$126.16

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$76.83

Supplemental Benefit Rate per Hour: \$32.95

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: \$122.93

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$65.08

Supplemental Benefit Rate per Hour: \$32.95

Supplemental Note: \$59.95 overtime hours

Shift Wage Rate: \$104.13

Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$84.25

Supplemental Benefit Rate per Hour: \$32.95

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$50.37

Supplemental Benefit Rate per Hour: \$32.95

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$67.45

Supplemental Benefit Rate per Hour: \$32.95

Supplemental Note: \$59.95 overtime hours

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$87.14**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$139.42**

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$83.75**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$134.00**

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.95**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$79.92**

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$47.58**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

Shift Wage Rate: **\$76.13**

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$69.51**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: **\$59.95** overtime hours

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$52.21**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$79.02**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Building Work IV

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$83.68**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$77.15**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$76.35**

Supplemental Benefit Rate per Hour: **\$32.95**

Supplemental Note: \$59.95 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

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

Overtime Description

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

For House Cars and Rack & Pinion only: Overtime paid at time and one-half for all hours in excess of eight hours in a day, Saturday, Sunday and Holidays worked.

Overtime

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

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

Paid Holidays

New Year's Day

Lincoln's Birthday

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates

For Steel Erection Only: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Operating Engineer Local #14)

FLOOR COVERER

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Floor Coverer

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$50.50**

Supplemental Benefit Rate per Hour: **\$45.98**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Paid Holidays

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

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

Shift Rates

Two shifts may be utilized with the first shift working 8 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. There must be a first shift to work the second shift.

(Carpenters District Council)

GLAZIER

(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$46.05**

Supplemental Benefit Rate per Hour: **\$43.39**

Supplemental Note: Supplemental Benefit Overtime Rate: \$65.10

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime

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

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, whenever performed, where the total cumulative contract value is under \$141,750)

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$25.64

Supplemental Benefit Rate per Hour: \$22.29

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).

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$36.50**

Supplemental Benefit Rate per Hour: **\$16.45**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Sunday.

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

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day
Easter

Paid Holidays

None

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

(Local #78 and Local #12A)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$61.46**

Supplemental Benefit Rate per Hour: **\$40.46**

Overtime Description

Double time shall be paid for supplemental benefits during overtime work.
8th hour paid at time and one half.

Overtime

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

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

Labor Day

Paid Holidays

None

Shift Rates

The first shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours the regular straight time hourly rate plus a fourteen percent wage and benefit premium.

(Local #12) (BCA)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

**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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$37.18**

Supplemental Benefit Rate per Hour: **\$29.77**

House Wrecker - Tier B

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$26.41**

Supplemental Benefit Rate per Hour: **\$22.18**

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: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$45.15**

Supplemental Benefit Rate per Hour: **\$55.62**

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

For off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$51.05**

Supplemental Benefit Rate per Hour: **\$76.89**

Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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

Overtime

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

Overtime Holidays

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

(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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$42.65

Supplemental Benefit Rate per Hour: \$44.48

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

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 the planting of street trees and the planting of trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

Landscaper (Year 6 and above)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$31.75

Supplemental Benefit Rate per Hour: \$16.05

Landscaper (Year 3 - 5)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$30.72

Supplemental Benefit Rate per Hour: \$16.05

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Landscaper (up to 3 years)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$28.14
Supplemental Benefit Rate per Hour: \$16.05

Groundperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$28.14
Supplemental Benefit Rate per Hour: \$16.05

Tree Remover / Pruner

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$36.92
Supplemental Benefit Rate per Hour: \$16.05

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$26.59
Supplemental Benefit Rate per Hour: \$16.05

Watering - Plant Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$21.40
Supplemental Benefit Rate per Hour: \$16.05

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$54.44**
Supplemental Benefit Rate per Hour: **\$40.77**

Marble Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$42.86**
Supplemental Benefit Rate per Hour: **\$38.22**

Marble Polisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$39.81**
Supplemental Benefit Rate per Hour: **\$30.35**

Marble Maintenance Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$24.31**
Supplemental Benefit Rate per Hour: **\$13.34**

Overtime Description

Supplemental Benefit contributions are to be made at the applicable overtime rates. Time and one half the regular rate after a 7 hour day or time and one half the regular rate after an 8 hour day - chosen by Employer at the start of the project and then would last for the full duration of the project.

Overtime

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

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$38.40

Supplemental Benefit Rate per Hour: \$31.04

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

(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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$36.44**

Supplemental Benefit Rate per Hour: **\$24.50**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$25.63**

Supplemental Benefit Rate per Hour: **\$18.82**

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$46.23

Supplemental Benefit Rate per Hour: \$46.67

Supplemental Note: Overtime Supplemental Benefit rate - \$57.92

Overtime Description

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

Overtime

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

Washington's Birthday

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

There will be no shift differential paid on the first shift if more than one shift is employed. The shift differential will remain \$12/hour on the second and third shift for the first eight (8) hours if worked. There will be no pyramiding on overtime worked on second and third shifts. The time and one half (1.5x) rate will be against the base wage rate, not the shift differential

(Local #46)

MILLWRIGHT

Millwright

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$54.20**

Supplemental Benefit Rate per Hour: **\$53.81**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

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

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

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

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

Shift Rates

The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one half hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

MOSAIC MECHANIC

Mosaic Mechanic - Mosaic & Terrazzo Mechanic

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.91**

Supplemental Benefit Rate per Hour: **\$43.24**

Mosaic Mechanic - Mosaic & Terrazzo Finisher

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$48.31
Supplemental Benefit Rate per Hour: \$43.24

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$48.31
Supplemental Benefit Rate per Hour: \$43.24

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$43.00
Supplemental Benefit Rate per Hour: \$32.49
Supplemental Note: \$ 37.75 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$46.00

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: **\$32.49**
Supplemental Note: \$ 37.75 on overtime

Overtime

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

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

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

Paid Holidays

None

(District Council of Painters #9)

PAINTER - LINE STRIPING (ROADWAY)

Striping - Machine Operator

Effective Period: 7/1/2019 - 6/30/2020

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

Supplemental Benefit Rate per Hour: **\$12.37**

Supplemental Note: Overtime Supplemental Benefit rate - \$8.02; New Hire Rate (0-3 months) - \$0.00

Lineperson (Thermoplastic)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$39.00**

Supplemental Benefit Rate per Hour: **\$12.37**

Supplemental Note: Overtime Supplemental Benefit rate - \$8.02; New Hire Rate (0-3 months) - \$0.00

Overtime Description

For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the weekday before and the weekday after the holiday.

Overtime

Time and one half the regular rate after an 8 hour day.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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
Day after Thanksgiving
Christmas Day

Shift Rates

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.
Friday may be used as a make-up 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. Vacation must be taken during winter months.

(Local #1010)

PAINTER - METAL POLISHER

METAL POLISHER

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$30.58
Supplemental Benefit Rate per Hour: \$7.16

METAL POLISHER - NEW CONSTRUCTION

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$31.53
Supplemental Benefit Rate per Hour: \$7.16

METAL POLISHER - SCAFFOLD OVER 34 FEET

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$34.08**

Supplemental Benefit Rate per Hour: **\$7.16**

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

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

Four Days a week at Ten (10) hours straight a day.

Local 8A-28A

PAINTER - SIGN

Sign Painter

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$41.98**

Supplemental Benefit Rate per Hour: **\$20.10**

Assistant Sign Painter

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$35.67**

Supplemental Benefit Rate per Hour: **\$18.47**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.50**

Supplemental Benefit Rate per Hour: **\$41.83**

Painter - Power Tool

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$55.50**

Supplemental Benefit Rate per Hour: **\$41.83**

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime

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

Overtime Holidays

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

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

Paid Holidays

None

Shift Rates

Regular hourly rates plus a ten per cent (10%) differential

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$45.40**

Supplemental Benefit Rate per Hour: **\$34.74**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$46.85**

Supplemental Benefit Rate per Hour: **\$44.86**

Supplemental Note: For time and one half overtime - \$48.74 For double overtime - \$52.61

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$42.98**

Supplemental Benefit Rate per Hour: **\$44.86**

Supplemental Note: For time and one half overtime - \$48.74 For double overtime - \$52.61

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$47.45**

Supplemental Benefit Rate per Hour: **\$44.86**

Supplemental Note: For time and one half overtime - \$48.74 For double overtime - \$52.61

Production Paver & Roadbuilder - Raker

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$46.85**

Supplemental Benefit Rate per Hour: **\$44.86**

Supplemental Note: For time and one half overtime - \$48.74 For double overtime - \$52.61

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$42.98**

Supplemental Benefit Rate per Hour: **\$44.86**

Supplemental Note: For time and one half overtime - \$48.74 For double overtime - \$52.61

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 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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

(Local #1010)

PLASTERER

Plasterer

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$45.93**

Supplemental Benefit Rate per Hour: **\$26.52**

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

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

New Year's Day

President's Day

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$38.40

Supplemental Benefit Rate per Hour: \$31.04

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$69.00

Supplemental Benefit Rate per Hour: \$37.20

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$55.28

Supplemental Benefit Rate per Hour: \$29.68

Overtime Description

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

Overtime

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Shift Rates

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

(Plumbers Local #1)

PLUMBER (MECHANICAL EQUIPMENT AND SERVICE)

(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$43.05

Supplemental Benefit Rate per Hour: \$17.71

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime

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

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$47.89**

Supplemental Benefit Rate per Hour: **\$26.74**

Overtime

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

Overtime Holidays

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

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$67.45**

Supplemental Benefit Rate per Hour: **\$25.26**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

(Plumbers Local #1)

**POINTER, WATERPROOFER, CAULKER, SANDBLASTER,
STEAMBLASTER**
(Exterior Building Renovation)

Journeyperson

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$53.42

Supplemental Benefit Rate per Hour: \$26.52

Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

ROOFER

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Roofer

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$43.50**

Supplemental Benefit Rate per Hour: **\$33.81**

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.

(Local #8)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$50.15**

Supplemental Benefit Rate per Hour: **\$50.55**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$40.12**

Supplemental Benefit Rate per Hour: **\$50.55**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$16.08

Supplemental Benefit Rate per Hour: \$11.63

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

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

The first worker to perform this work must be paid at the rate of the Sheet Metal Worker. The second and third workers shall be paid the Specialty Worker Rate. The ratio of One Sheet Metal Worker, then Two Specialty Workers shall be utilized thereafter.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$46.30**

Supplemental Benefit Rate per Hour: **\$25.95**

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$28.50**

Supplemental Benefit Rate per Hour: **\$3.95**

Shipyard Mechanic - Second Class

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$19.07**

Supplemental Benefit Rate per Hour: **\$3.59**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Shipyard Laborer - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$23.40
Supplemental Benefit Rate per Hour: \$3.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$17.38
Supplemental Benefit Rate per Hour: \$3.52

Shipyard Dockhand - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$21.57
Supplemental Benefit Rate per Hour: \$3.68

Shipyard Dockhand - Second Class

Effective Period: 7/1/2019 - 6/30/2020
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 hours in any work week.

Paid Holidays

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

Based on Survey Data

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$49.35**

Supplemental Benefit Rate per Hour: **\$54.63**

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 I

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$57.50**

Supplemental Benefit Rate per Hour: **\$57.29**

Supplemental Note: Overtime supplemental benefit rate: **\$113.84**

Steamfitter -Temporary Services

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$43.70

Supplemental Benefit Rate per Hour: \$46.54

Overtime

Double time the regular rate after a 7 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Paid Holidays

None

Shift Rates

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

Steamfitter II

For heating, ventilation, air conditioning and mechanical public work contracts with a dollar value not to exceed \$30,000,000 and for fire protection/sprinkler public work contracts not to exceed \$3,000,000.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$57.50

Supplemental Benefit Rate per Hour: \$57.29

Supplemental Note: Overtime supplemental benefit rate: \$113.84

Steamfitter -Temporary Services

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$43.70

Supplemental Benefit Rate per Hour: \$46.54

Overtime

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Paid Holidays

None

Shift Rates

May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium on supplemental benefits.

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

Local #638

STEAMFITTER - REFRIGERATION AND AIR CONDITIONER (Maintenance and Installation Service Person)

Refrigeration and Air Conditioner Mechanic

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$42.35
Supplemental Benefit Rate per Hour: \$17.46

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$34.80
Supplemental Benefit Rate per Hour: \$15.59

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$28.83
Supplemental Benefit Rate per Hour: \$14.05

Refrigeration and Air Conditioner Service Person III

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$24.74
Supplemental Benefit Rate per Hour: \$12.91

Refrigeration and Air Conditioner Service Person II

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$20.51
Supplemental Benefit Rate per Hour: \$11.83

Refrigeration and Air Conditioner Service Person I

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$15.01
Supplemental Benefit Rate per Hour: \$10.60

Overtime

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Overtime Holidays

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

New Year's Day
Independence Day
Labor Day
Veteran's Day
Thanksgiving Day
Christmas Day

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

Martin Luther King Jr. Day
President's Day
Memorial Day
Columbus Day

Paid Holidays

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

(Local #638B)

STONE MASON - SETTER

Stone Mason - Setter

(Assisted by Derrickperson and Rigger)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$54.17**

Supplemental Benefit Rate per Hour: **\$42.65**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$47.82

Supplemental Benefit Rate per Hour: \$26.81

Overtime

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

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

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

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

(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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$44.75

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **\$42.72**
Supplemental Benefit Rate per Hour: **\$33.57**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$54.84**

Supplemental Benefit Rate per Hour: **\$38.32**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$50.05**

Supplemental Benefit Rate per Hour: **\$51.03**

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.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

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

Overtime Holidays

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

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

Shift Rates

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

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: **\$65.42**

Supplemental Benefit Rate per Hour: **\$56.42**

Tunnel Workers (Compressed Air Rates)

Includes shield driven liner plate portions or solidification portions work (8 hour shift) during excavation phase.

Effective Period: 7/1/2019 - 6/30/2020

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$63.21
Supplemental Benefit Rate per Hour: \$54.60

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$62.02
Supplemental Benefit Rate per Hour: \$53.57

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$60.84
Supplemental Benefit Rate per Hour: \$52.63

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

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$60.84
Supplemental Benefit Rate per Hour: \$52.63

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$53.40
Supplemental Benefit Rate per Hour: \$49.60

Blasters (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$62.41
Supplemental Benefit Rate per Hour: \$54.17

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$59.72
Supplemental Benefit Rate per Hour: \$51.89

All Others (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$55.18
Supplemental Benefit Rate per Hour: \$48.03

Microtunneling (Free Air Rates)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$47.78

Supplemental Benefit Rate per Hour: \$41.51

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: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$31.56

Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Year 5 - 6)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: \$22.85

Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Year 4)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$21.54
Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Year 3)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$20.30
Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Year 2)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$19.13
Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Year 1)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$18.04
Supplemental Benefit Rate per Hour: \$1.93

Utility Locator (Up to 1 year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: \$17.00
Supplemental Benefit Rate per Hour: \$1.93
Supplemental Note: No benefits for the first 90 days of employment.

Overtime

Time and one half the regular rate for work on the following Paid Holiday(s).
Time and one half the regular hourly rate after 40 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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

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.**



**Department of
Design and
Construction**

Issue Date: July 1, 2019

DDC STANDARD GENERAL CONDITIONS

FOR SINGLE CONTRACT PROJECTS



**Department of
Design and
Construction**

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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 (Schedule A through F), (2) information regarding the applicability of various articles, and (3) amended articles, if any.

1.2 SUMMARY:

- A. This section includes the following:
 - 1. Scope and Intent
 - 2. Provisions Referenced in the Contract
 - 3. Performance of Work During Non-Regular Work Hours (Pursuant to a Change Order)
 - 4. Interruption of Services at Existing Facilities

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SCOPE AND INTENT:

- A. Description of Project: Refer to the Addendum for a description of the project.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 B

- B. LEED: The City of New York will seek U.S. Green Building Council (USGBC) LEED (Leadership in Energy and Environmental Design) certification for this Project as specified in Section 01 81 13.03 "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 shall 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 shall cooperate with the commissioning agent and provide whatever assistance is required.
- D. **PROGRESS SCHEDULE:** Refer to Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION for requirements of the project.
- E. **COMPLETION OF WORK:** Work to be done under the Contract is comprised of the furnishing of all labor, materials, equipment and other appurtenances, and obtaining all regulatory agency approvals necessary and required to complete the construction work in accordance with the Contract.
- F. **OMISSION OF DETAILS:** All work called for in the Specifications applicable to the Contract but not shown on the Contract Drawings in their present form, or vice versa, is required, and shall be performed by the Contractor as though it were originally delineated or described. The cost of such work shall be deemed included in the total Contract Price.
- G. **WORK NOT IN SPECIFICATIONS OR CONTRACT DRAWINGS:** Work not particularly specified in the Specifications nor detailed on the Contract Drawings but involved in carrying out their intent or in the complete and proper execution of the work, is required, and shall be performed by the Contractor. The cost of such work shall be deemed included in the total Contract Price.
- H. **SILENCE OF THE SPECIFICATIONS:** The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best practice is to prevail and that only the best material and workmanship is to be used and interpretation of the Specifications shall be made upon that basis.
- I. **CONFLICT BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS:** Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated the most expensive way of doing the work unless the Contractor shall have asked for and obtained a decision in writing from the Commissioner before the submission of the bid as to what shall govern.

1.5 CONTRACT DRAWINGS AND SPECIFICATIONS:

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

City of New York
Department of Design and Construction
Division of Public Buildings
- B. **DOCUMENTS FURNISHED TO THE CONTRACTOR -** After the award of the Contract, the Contractor will be furnished with five (5) complete sets of paper prints of all Contract Drawings mentioned in Paragraph A above, as well as a copy of the Specifications.
- C. **ADDITIONAL COPIES** of Drawings and Specifications, when requested, will be furnished to the Contractor if available.
- D. **SUPPLEMENTARY DRAWINGS -** When, in the opinion of the Commissioner, it becomes necessary to more fully explain the work to be done, or to illustrate the work further, or to show any changes which may be required, drawings known as Supplementary Drawings will be prepared by the Commissioner.



- E. **COMPENSATION** - Where Supplementary Drawings entail extra work, compensation therefore to the Contractor shall be subject to the terms of the Contract. The Supplementary Drawings shall be binding upon the Contractor with the same force as the Contract Drawings.
- F. **SUPPLEMENTARY DRAWING PRINTS** - Three (3) copies of prints of these Supplementary Drawings will be furnished to the Contractor.
- G. **COPIES TO SUBCONTRACTORS** - The Contractor shall furnish each of its subcontractors and material suppliers such copies of Contract Drawings, Supplementary Drawings, or copies of the Specifications as may be required for its work.

1.6 COORDINATION:

- A. **COORDINATION AND COOPERATION** - The Contractor shall consult and study the requirements of the Contract Drawings and Specifications for all required work, including all work to be performed by trade subcontractors, so that the Contractor may become acquainted with the work of the project as a whole in order to achieve the proper coordination and cooperation necessary for the efficient and timely performance of the work.
- B. **CONTRACTOR TO CHECK DRAWINGS:** - The Contractor shall verify all dimensions, quantities and details shown on the Contract Drawings, Schedules, or other data received from the Commissioner, and shall notify the Commissioner of all errors, omissions, conflicts and discrepancies found therein. Notice of such errors shall be given before the Contractor proceeds with any work. Figures shall be used in preference to scale dimensions and large-scale drawings in preference to small-scale drawings.

1.7 SHOP DRAWINGS AND RECORD DRAWINGS:

- A. Refer to Division I 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 Division I Section 01 50 00 – TEMPORARY FACILITIES SERVICES AND CONTROLS for the responsibilities of the Contractor.

1.9 DUST CONTROL:

- A. The Contractor shall prepare, execute and manage a "Dust Control Plan" for the prevention of the emission of dust from construction related activities in compliance with 15 RCNY 13-01 et. seq.

1.10 PROVISIONS REFERENCED IN THE CONTRACT:

- A. **SCHEDULE A** - Various Articles of the Contract refer to requirements set forth in Schedule A of the General Conditions. Schedule A, which is included in the Addendum, sets forth (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the Contract.
- B. **EXTENSION OF TIME** - Applications for Extensions of Time, as indicated in Article 13 of the Contract, shall be made in accordance with the Rules of the Procurement Policy Board.
- C. **PARTIAL PAYMENTS FOR MATERIALS IN ADVANCE OF THEIR INCORPORATION IN THE WORK PURSUANT TO ARTICLE 42 OF THE CONTRACT** – In order to better insure the availability of materials, fixtures and equipment when needed for the work, the Commissioner may authorize partial payment for certain materials, fixtures and equipment, prior to their incorporation in the work, but only in



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strict accordance with, and subject to, all the terms and conditions set forth in the Specifications, unless an alternate method of payment is elsewhere provided in the Specifications for specified materials, fixtures or equipment.

1. The Contractor shall submit to the Commissioner a written request, in quadruplicate, for payment for materials purchased or to be purchased for which the Contractor needs to be paid prior to their actual incorporation in the work. The request shall be accompanied by a schedule of the types and quantities of materials, and shall state whether such materials are to be stored on or off the site.
2. Where the materials are to be stored off the site, they shall be stored at a place other than the Contractor's premises (except with the written consent of the Commissioner) and under the conditions prescribed or approved by the Commissioner. The Contractor shall set apart and separately store at the place or places of storage all materials and shall clearly mark same "PROPERTY OF THE CITY OF NEW YORK", and further, shall not at any time move any of said materials to another off-site place of storage without the prior written consent of the Commissioner. Materials may be removed from their place of storage off the site for incorporation in the work upon approval of the Resident Engineer.
3. Where the materials are to be stored at the site, they shall be stored at such locations as shall be designated by the Resident Engineer and only in such quantities as, in the opinion of the Resident Engineer, will not interfere with the proper performance of the work by the Contractor or by other Contractors then engaged in performing work on the site. Such materials shall not be removed from their place of storage on the site except for incorporation in the work, without the approval of the Resident Engineer.
4. **INSURANCE**
 - a. **STORAGE OFF-SITE** – Where the materials are stored off the site and until such time as they are incorporated in the work, the Contractor shall fully insure such materials against any and all risks of destruction, damage or loss including but not limited to fire, theft, and any other casualty or happening. The policy of insurance shall be payable to the City of New York. It shall be in such terms and amounts as shall be approved by the Commissioner and shall be placed with a company duly licensed to do business in the State of New York. The Contractor shall deliver the original and one (1) copy of such policy or policies marked "Fully Paid" to the Commissioner.
 - b. **STORAGE ON THE SITE** – Where the materials are stored at the site, the Contractor shall furnish satisfactory evidence to the Commissioner that they are properly insured against loss, by endorsements or otherwise, under the policy or policies of insurance obtained by the Contractor to cover losses to materials owned or installed by the Contractor. The policy of insurance shall cover fire and extended coverage against windstorm, hail, explosion and riot attending a strike, civil commotion, aircraft, vehicles and smoke.
5. All costs, charges and expenses arising out of the storage of such materials, shall be paid by the Contractor and the City hereby reserves the right to retain out of any partial or final payment made under the Contract an amount sufficient to cover such costs, charges and expenses with the understanding that the City shall have and may exercise any and all other remedies at law for the recovery of such cost, charges and expenses. There shall be no increase in the Contract price for such costs, charges and expenses and the Contractor shall not make any claim or demand for compensation therefore.
6. The Contractor shall pay any and all costs of handling and delivery of materials, to the place of storage and from the place of storage to the site of the work; and the City shall have the right to retain from any partial or final payment an amount sufficient to cover the cost of such handling and delivery.



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7. In the event that the whole or any part of these materials are lost, damaged or destroyed in advance of their satisfactory incorporation in the work, the Contractor, at the Contractor's own cost, shall replace such lost, damaged or destroyed materials of the same character and quality. The City will reimburse the Contractor for the cost of the replaced materials to the extent, and only to the extent, of the funds actually received by the City under the policies of insurance hereinbefore referred to. Until such time as the materials are replaced, the City will deduct from the value of the stored materials or from any other money due under the Contract, the amount paid to the Contractor for such lost, damaged or destroyed materials.
8. Should any of the materials paid for the City hereunder be subsequently rejected or incorporated in the work in a manner or by a method not in accordance with the Contract Documents, the Contractor shall remove and replace, at Contractor's own cost, such defective or improperly incorporated material with materials complying with the Contract Documents. Until such materials are replaced, the City will deduct from the value of the stored materials or from any other money due the Contractor, the amount paid by the City for such rejected or improperly incorporated materials.
9. Payments for the cost of materials made hereunder shall not be deemed to be an acceptance of such materials as being in accordance with the Contract Documents, and the Contractor always retains and must comply with the Contractor's duty to deliver to the site and properly incorporate in the work only materials which comply with the Contract Documents.
10. The Contractor shall retain any and all risks in connection with the damage, destruction or loss of the materials paid for hereunder to the time of delivery of the same to the site of the work and their proper incorporation in the work in accordance with the Contract Documents.
11. The Contractor shall comply with all laws and the regulations of any governmental body or agency pertaining to the priority purchase, allocation and use of the materials.
12. When requesting payment for such materials, the Contractor shall submit with the partial estimate duly authenticated documents of title, such as bills of sale, invoices or warehouse receipts, all in quadruplicate. The executed bills of sale shall transfer title to the materials from the Contractor to the City. (In the event that the invoices state that the material has been purchased by a subcontractor, bills of sale in quadruplicate will also be required transferring title to the materials from subcontractor to the Contractor).
13. Where the Contractor, with the approval of the Commissioner, has purchased unusually large quantities of materials in order to assure their availability for the work, the Commissioner, at the Commissioner's option, may waive the requirements of Paragraph 12 provided the Contractor furnishes evidence in the form of an affidavit from the Contractor in quadruplicate, and such other proof as the Commissioner may require, that the Contractor is the sole owner of such materials and has purchased them free and clear of all liens and other encumbrances. In such event, the Contractor shall pay for such materials and submit proof thereof, in the same manner as provided in Paragraph 12 hereof, within seven (7) days after receipt of payment therefore from the Comptroller. Failure on the part of the Contractor to submit satisfactory evidence that all such materials have been paid for in full, shall preclude the Contractor from payments under the Contract.
14. The Contractor shall include in each succeeding partial estimate requisition a summary of materials stored which shall set forth the quantity and value of materials in storage, on or off the site, at the end of each preceding estimate period; the amount removed for incorporation in the work; the quantity and value of materials delivered during the current period and the total value of materials on hand for which payment thereof will be included in the current payment estimate.
15. Upon proof to the satisfaction of the Commissioner of the actual cost of such materials and upon submission of proper proof of title as required under Paragraph 12 or Paragraph 13 hereof, payment will be made therefore to the extent of 85%, provided however, that the cost so verified,



established and approved shall not exceed the estimated cost of such materials included in the approved detailed breakdown estimate submitted in accordance with Article 41 of the Contract; if it does, the City will pay only 85% approved estimated cost.

16. Upon the incorporation in the work of any such materials, which have been paid for in advance of such incorporation in accordance with the foregoing provisions, payment will be made for such materials incorporated in the work pursuant to Article 42 of the Contract, less any sums paid pursuant to Paragraph 15 herein.

- D. **MOBILIZATION PAYMENT** – A line item for mobilization shall be allowed on the Contractor’s Detailed Bid Breakdown submitted in accordance with Article 41 of the Contract. The Mobilization Payment is intended to include the cost of required bonds, insurance coverage and/or any other expenses required for the initiation of the Contract Work. All costs for mobilization shall be deemed included in the total Contract Price. The Detailed Bid Breakdown shall reflect, and the Mobilization Payment shall be made, in accordance with the following schedule:

Contract Amount	Percent	Mobilization
Less than - \$ 50,000	x 0 =	0
\$ 50,000 - \$ 100,000	x =	\$ 6,000
\$ 100,001 - \$ 500,000	x 6 =	\$ 6,000 (min) - \$ 30,000 (max)
\$ 500,000 - \$ 2,500,000	x 5 =	\$ 30,000 (min) - \$ 125,000 (max)
Over - \$ 2,500,000	x 4 =	\$ 125,000 (min) - \$ 300,000 (max)

The Contractor may requisition for one-half (1/2) of the Mobilization Payment upon satisfactory completion of the following:

1. Installation of any required field office(s).
2. Submission of all required insurance certificates and bonds.
3. Approval by the Department of Design and Construction of the coordinated progress schedule for the project and the Contractor’s Shop Drawing schedule.

The remaining balance of the Mobilization Payment may be requisitioned only after 10 percent (10%) of the Contract price, exclusive of the total amount of Mobilization Payments made or to be made hereunder, shall have been approved for payment.

- E. **ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:** The Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel in Non-Road Vehicles, and the implementation of Best Available Technology (BAT), as set forth in Article 5.4 of the Contract. Such reports shall be submitted in accordance with the schedule, format, directions and procedures established by the Commissioner.

1.11 PERFORMANCE OF WORK DURING NON-REGULAR WORK HOURS:

- A. **NON-REGULAR WORK HOURS:** The Commissioner may issue a change order in accordance with Article 25 of the Contract which (1) directs the Contractor to perform the Work, or specific components thereof, during other than regular work hours (i.e., evenings, weekends and holidays), and (2) provides



compensation to the Contractor for costs in connection with the performance of Work during other than regular work hours. The Commissioner may issue a change order if a delay has occurred and such delay is not the fault of the Contractor, or if the work is of such an important nature that delay in completing such work would result in serious disadvantage to the public.

- B. PROCEDURE: The Contractor shall (1) obtain whatever permits may be required for performance of the work during other than regular business hours, and (2) pay all necessary fees in connection with such permits. In addition, if directed by the Commissioner, the Contractor shall make immediate application to the Commissioner of the Department of Labor, State of New York, for dispensation in accordance with Subdivision 2 of Section 220 of the Labor Law.

1.12 INTERRUPTION OF SERVICES AT EXISTING FACILITIES:

- A. EVENING AND WEEKEND WORK - Where performance of the Work requires the temporary shutdown(s) of services, such shutdown(s) shall be made at night or on weekends or at such times that will cause no interference with the established routines and operations of the facility in question.
- 1 Where weekend or evening work is required due to unavoidable service shutdowns, such work shall be performed at no extra cost to the City. Components of the Work that must be performed during other than regular work hours are indicated in the Drawings and/or the Specifications.
- B. INTERRUPTION OF EXISTING FACILITIES:
- 1 The Contractor shall not interrupt any of the services of the facility nor interfere with such services in any way without the permission of the Commissioner. Such interruption or interferences shall be made as brief as possible, and only at such time stated.
 - 2 Under no circumstances shall the Contractor, its subcontractors, or its workers, be permitted to use any part of the project as a shop, without the permission of the Commissioner.
 - 3 Unnecessary noise shall be avoided at all times and necessary noise shall be reduced to a minimum.
 - 4 Toilet facilities, water and electricity must be operational at all times (i.e. 24/7). No services of the facility can be interrupted in any way without the permission of the Commissioner. Careful coordination of all work with the Resident Engineer must be done to maintain the operational level of the project personnel at the facility.
 - 5 The Contractor shall schedule the work to avoid noise interference that will affect the normal functions of the facility. In particular, construction operations producing noises that are objectionable to the functions of the facility must be scheduled at times of day or night, day of the week, or weekend, which will not interfere with personnel at the facility. Any additional cost resulting from this scheduling shall be borne by the Contractor.
 - 6 The Contractor shall arrange to work continuously, including evening and weekend hours, if required, to assure that services will be shut down only during the time actually required to make the necessary connections to the existing facility.
 - 7 The Contractor shall give ample written notice in advance to the Commissioner and personnel at the facility of any required shutdown.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)



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END OF SECTION 01 10 00

SUMMARY
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**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. Commissioning shall 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 shall cooperate with the commissioning agent and provide whatever assistance is required.

1.2 SUMMARY:

- A. This Section includes administrative provisions for coordinating construction operations on the Project including without limitation the following.
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
- B. This section includes the following:
 - 1. Definitions
 - 2. Coordination
 - 3. Submittals
 - 4. Administrative and Supervisory Personnel
 - 5. Project Meetings
 - 6. Requests for Interpretation (RFI's)
 - 7. Correspondence
 - 8. Contractor's Daily Reports
 - 9. Alternate and Substitute Equipment
- C. RELATED SECTIONS: include without limitation the following:
 - 1. Section 01 10 00 SUMMARY
 - 2. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
 - 3. Section 01 33 00 SUBMITTALS
 - 4. Section 01 35 26 SAFETY REQUIREMENTS
 - 5. Section 01 73 00 EXECUTION REQUIREMENTS



- 6. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- 7. Section 01 77 00 CLOSEOUT PROCEDURES

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 COORDINATION:

- A. Coordination: The Contractor shall coordinate its construction operations, including those of its subcontractors, with other entities to ensure the efficient and orderly installation of each part of the Work. The Contractor shall coordinate the various operations required by different Sections of the Specifications that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence in order to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. The Contractor shall prepare memoranda for distribution to its subcontractors and other involved entities, outlining special procedures required for coordination. Such memoranda shall include required notices, reports, and meeting minutes as applicable.
- C. Administrative Procedures: The Contractor shall coordinate scheduling and timing of required administrative procedures with other construction activities and activities of its subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include without limitation the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Installation and removal of temporary facilities and controls.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Pre-installation conferences.
 - 6. Startup and adjustment of systems.
 - 7. Project closeout activities.
- D. Conservation: The Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.



- E. Salvaged Items, Material and/or Equipment: The Specifications may identify certain items, materials or equipment which must be salvaged by the Contractor and handled or disposed of as directed. The Contractor shall comply with all directions in the Specifications regarding the salvaging and handling of identified items, material or equipment.

1.5 SUBMITTALS:

- A. Submit shop drawings, product data, samples etc. in compliance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. Coordination Drawings: The Contractor shall prepare applicable Coordination Drawings in compliance with the requirements for Coordination Drawings in Section 01 33 00, SUBMITTAL PROCEDURES.
- C. Safety Plan in compliance with Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES.
- D. Waste Management Plan in compliance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- E. Key Personnel Names: Within 15 days after the Notice to Proceed, the Contractor shall submit a list of key personnel assignments of the Contractor and its subcontractors, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in case of the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
 2. In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work. Include special personnel required for coordinating all operations by its subcontractors.

1.6 PROJECT MEETINGS:

- A. General: The Resident Engineer will hold regularly scheduled construction progress meetings at the site, at which time the Contractor and appropriate subcontractors shall have their representatives present to discuss all details relative to the execution of the work. The Resident Engineer shall preside over these meetings.
1. Agenda: Prior to each meeting, the Resident Engineer will consult with the Contractor and will prepare an agenda of items to be discussed. In general, after informal discussion of any item on the agenda, the Resident Engineer will summarize the discussion in a brief written statement, and the Contractor will then dictate a brief statement for the record.
 2. Coordination: In addition to construction progress meetings called by the Resident Engineer, the Contractor shall hold regularly scheduled meetings for the purpose of coordinating; expediting and scheduling the work in accordance with the master coordinated Job Progress Chart. The Contractor and its subcontractors, material suppliers or vendors whose presence is necessary, are required to attend. These meetings may, at the discretion of the Contractor, be held at the same place and immediately following the project meetings held by the Resident Engineer. Minutes of these meetings shall be recorded, typed and printed by the Contractor and distributed to all parties concerned.
- B. PRECONSTRUCTION KICK-OFF MEETING:
1. The Resident Engineer will schedule a preconstruction kick-off meeting either at DDC's main office or at the Project site to review responsibilities and personnel assignments and clarify the



- role of each participant. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.
2. Attendees: Authorized representative of the Client Agency; Design Consultant; the Contractor and its superintendents, subcontractor(s) and their superintendent(s); LEED sub-consultant and Commissioning Authority /Agent (CxA) as applicable and other concerned parties. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Contract Work.
 3. Agenda: Includes without limitation the following as applicable:
 - a. Establishing construction schedule
 - b. Schedule for regular construction meetings
 - c. Phasing
 - d. Critical work sequencing and long-lead items
 - e. Designation of key personnel and their duties
 - f. Reviewing Application for Payment and Change Order Procedures
 - g. Procedures for Requests for Information (RFIs.)
 - h. Review Permits and Approval requirements
 - i. Review all recent Administrative Code reporting requirements relating to the project, (i.e. LL 77, LL86 etc.)
 - j. Procedures for testing and inspecting
 - k. Reviewing special conditions at the Project site
 - l. Distribution of the Contract Documents
 - m. Submittal procedures
 - n. Safety Procedures
 - o. LEED requirements
 - p. Commissioning Requirements
 - q. Preparation of Record Documents
 - r. Historic Treatment requirements
 - s. Use of the premises
 - t. Work restrictions
 - u. Client Agency occupancy requirements
 - v. Responsibility for temporary facilities, services and controls
 - w. Construction Waste Management and Disposal
 - x. Indoor Air Quality Management Plan
 - y. Dust Mitigation Plan
 - z. Office, work, and storage areas
 - aa. Equipment deliveries and priorities
 - bb. Security
 - cc. Progress cleaning
 - dd. Working hours



C. CONSTRUCTION PROGRESS MEETINGS:

1. The Resident Engineer will schedule and conduct construction progress meetings at bi-weekly intervals or as otherwise determined. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.
2. Attendees:
 - a. Design Consultant and applicable sub-consultants
 - b. Client Agency Representative
 - c. Representatives from the Contractor, sub-contractor(s), suppliers or other entities involved in the current progress, planning, coordination or future activities of the Work
 - d. Other appropriate DDC personnel, DDC consultants and concerned parties
3. Agenda: Includes without limitation the following:
 - a. Review the Construction Schedule and progress of the Work. Determine if the Work is on time, ahead of schedule or behind schedule. Determine actions to be taken to maintain or accelerate the schedule
 - b. Review and approve prior meeting minutes and follow up open issues
 - c. Coordinate work between each subcontractor
 - d. Sequence of Operations
 - e. Status of submittals, deliveries and off-site fabrication
 - f. Status of inspections and approvals by governing agencies
 - g. Temporary facilities and controls
 - h. Review Site Safety
 - i. Quality and work standards
 - j. Field observations
 - k. Status of correction of deficient items
 - l. RFI's
 - m. Pending changes
 - n. Status of outstanding Payments and Change Orders
 - o. LEED requirements including Construction Waste Management, Indoor Air Quality Plan, Dust Mitigation and Commissioning
 - p. Status of Administrative Code reporting requirements related to the project

1.7 REQUESTS FOR INFORMATION (RFI):

- A. Procedure: Immediately on discovery of the need for information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, the Contractor shall prepare and submit an RFI in the form specified by the Resident Engineer.
 1. RFI shall originate with the Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFI in a prompt manner to the Resident Engineer so as to avoid delays in Contractor's work or work of its subcontractors.
 3. RFI Log: The Contractor shall prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the Resident Engineer.



4. On receipt of responses and action to the RFI, the Contractor shall update the RFI log and immediately distribute the RFI response to affected parties. Review response(s) and notify the Resident Engineer immediately if the Contractor disagrees with response(s).

1.8 CORRESPONDENCE:

- A. Copies of all correspondence to DDC shall be sent directly to the Resident Engineer at the job site.

1.9 CONTRACTOR'S DAILY REPORTS:

- A. The Contractor shall prepare and submit Daily Construction Progress Reports as outlined in Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 31 00



**SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION**

PART 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, revising as necessary, various documents including but not limited to the following:
1. Baseline Construction Schedule.
 2. Composite Schedule for entire project
 3. Recovery Composite Schedule
 4. Revised and/or updated Composite Schedule
 5. Submittals Schedule.
 6. Daily construction reports.
 7. Material location reports.
 8. Field condition reports.
 9. Special reports.
- B. RELATED SECTIONS: include without limitation the following:
1. Section 01 10 00 SUMMARY
 2. Section 01 32 22 PHOTOGRAPHIC DOCUMENTATION
 3. Section 01 33 00 SUBMITTAL PROCEDURES
 4. Section 01 40 00 QUALITY REQUIREMENTS

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.



- C. **Baseline Construction Schedule:**
 - 1. A horizontal bar chart type schedule (Microsoft Project OR similar program) listing all the activities and their duration for entire contract duration OR construction period, including logical ties and interrelations between the activities necessary for the timely and successful completion of the project. Critical path activities shall be clearly marked. The Baseline construction schedule is a preliminary schedule that must be reviewed and approved by the Resident Engineer.

- D. **Composite Schedule:**
 - 1. A composite horizontal bar chart type schedule (Microsoft Project OR similar program) listing all activities to be performed by the Contractor and its subcontractors, the duration of each activity including logical ties and interrelations between activities, and the sequence of each of necessary activities for the timely and successful completion of the project within the stipulated contract duration. Critical path activities shall be clearly marked. The Composite schedule must be signed and submitted by the Contractor within thirty (30) calendar days after the date established for commencement of the Contract, unless otherwise directed. The Composite Schedule must be reviewed and approved by the Resident Engineer.

- E. **Recovery Composite Schedule:** A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order.
 - 1. A Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions. In such case special attention must be given to keep the delays as minimum as possible and must establish the nature of efforts such as extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its subcontractors, consultants, clients, end users and/or other concerned parties.
 - 2. Such schedule must be prepared and submitted within Five (5) calendar days of request by the Resident Engineer. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.

- F. **Revised and/or Updated Composite Schedule:**
 - 1. A Baseline construction schedule OR Composite Schedule OR Recovery Composite Schedule for the project that shows the actual duration of all the completed activities, including duration of and the reasons for delays, if any has occurred, AND revisions to all remaining activities of the Contractor and its subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined activities. Any such revisions should be shown on the row just below the approved schedule of the respective activity so that revisions can be compared.
 - 2. The Revised and/or updated Composite Schedule must be reviewed and approved by the Resident Engineer.

- G. **Activity:** A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

- H. **Event:** The starting or ending point of an activity.

- I. **Fragment:** A part of the activity that breaks down activities into smaller activities for greater detail.



- J. Milestone: A key or critical point in time for reference or measurement.
- K. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

PART II – PRODUCTS

2.1 BASELINE CONSTRUCTION SCHEDULE:

- A. The Contractor shall prepare a Baseline horizontal bar-chart-type construction schedule for the project. Submit the Baseline Construction Schedule to the Resident Engineer within (15) fifteen calendar days after the date established for commencement of the Contract, unless directed otherwise. The Baseline Schedule must be reviewed and approved by the Resident Engineer.
 - 1. Provide a separate time bar for each significant construction activity. Coordinate each activity on the schedule with other construction activities for proper interrelationship & sequence.
 - 2. Duration: The duration of each activity on the schedule besides installation must clearly show required duration of filing for permits, inspections, testing, approvals, shop drawings and materials submittals and approvals, fabrication, delivery, phasing for each construction activity.
 - 3. Schedule shall be time-scaled in not more than weekly increments, with the dates of the first day (Monday) of each week indicated.
 - 4. Completion of all the project activities shall be indicated in advance of the date established for completion of the Contract, allowing time for required inspection and punch list work.
 - 5. Clearly show time bar for all the tasks, to be completed before start of physical work of scheduled activities, including but not limited to obtaining required permit, subcontractor approval, submission and approval of shop drawings, field verification, time for fabrication and delivery, testing of materials and/or samples, preparation and approval of mock-up sample, curing, pre-testing of soil, pre-testing of equipment - including start up, testing & adjusting, filing for inspection by regulatory agencies, training, final use, etc. required to maintain orderly progress of the activity. A special consideration must be given to those activities requiring early approvals because of long lead-time for manufacture or fabrication.
 - 6. Phasing: Arrange all activities in proper sequence to reflect requirements for phased completion, work by other entities, work by the City, City furnished items, coordination with existing work, limitations arising due to continued occupancies, non-interruptible services, partial completion for occupancy, site restrictions, provisions for future work, seasonal variations, environmental control, and similar conditions of the project.
 - 7. Arrange all activities and/or show interrelationship and logical sequence of all activities, determine and mark all critical path activities including any phasing reflecting actual project condition.
 - 8. Keep at least two blank horizontal bars between all activities for recording actual progress and submitting Revised Schedule as defined in Sub-Section 1.3 G
 - 9. If necessary a new revised schedule shall be prepared in the same manner as outlined above.

2.2 COMPOSITE SCHEDULE FOR THE PROJECT:

- A. The Contractor shall prepare a Composite Schedule based on the approved Baseline Schedule. Such schedule shall indicate graphically and chronologically the start and completion of each and every activity, including all the pre-activity and post activity tasks. Keep at least two blank horizontal bars between all activities for recording actual progress and/or revisions.
 - 1. If necessary the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Composite Schedule. The Composite Schedule must be finalized and signed by the Contractor within (30) thirty calendar days



after the date established for commencement of the Contract, unless directed otherwise. The Composite Schedule must be reviewed and approved by the Resident Engineer.

2.3 RECOVERY COMPOSITE SCHEDULE:

- A. A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order. A Recovery Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions, must be developed and submitted within (5) five calendar days of the request by the Resident Engineer. Such Recovery Composite Schedule shall include all information as defined in Article 1.3 F and shall be prepared in the same manner as outlined in Sub-Sections 2.1 and 2.2. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.

2.4 REVISED AND/OR UPDATED COMPOSITE SCHEDULE:

- A. The Contractor shall revise and/or update the approved Composite Schedule as directed. The Revised schedule shall be prepared in the same manner as outlined above in Sub-Sections 2.1 and 2.2.
- B. The Contractor shall mark actual progress, delays, work stoppage etc. in the row just below the approved schedule for the respective activity so that revisions can be compared.
- C. Such schedule also shall indicate graphically and chronologically any revisions to the start and completion of the remaining activities including revisions to all the pre-activity and post activity tasks for all subcontractors.
- D. If necessary, the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Revised Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Schedule. Such schedule must be prepared and submitted by the Contractor within Five (5) calendar days of request by the Resident Engineer. The Revised Composite Schedule must be reviewed and approved by the Resident Engineer.

2.5 SUBMITTALS SCHEDULE:

- A. Preparation: The Contractor shall submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
- B. SCHEDULE F: Schedule F sets forth all submittal requirements for shop drawings and material samples. Schedule F is included in the Addendum. At the kick-off meeting, the Contractor must review this Schedule with the Resident Engineer and the Design Consultant. Within 10 days after the kick-off meeting, the Contractor must complete information on Schedule F concerning the submission date, the required delivery date and the fabrication time. For all required submittals of shop drawings and material samples, the Schedule F provided by the Contractor must indicate a submission date which is at least 20 business days prior to the date of the manufacture of the item or materials to be installed. In addition, if so directed by the Commissioner, the Schedule F provided by the Contractor must indicate a submission date for shop drawings and/or material samples of specified items or materials which is within 60 business days after the kick-off meeting. In the event of any conflict between the Specifications and Schedule F, Schedule F shall take precedence; provided, however, in the event of an omission from Schedule F (i.e., Schedule F omits either a reference to or information concerning a submittal requirement which is set forth in the Specifications), such omission from Schedule F shall have no effect and the Contractor's submittal obligation, as set forth in the Specifications, shall remain in full force and effect.



- C. Review: The Resident Engineer will review the Schedule F submitted by Contractor. Upon acceptance, the Resident Engineer will date and sign the schedule as approved and transmit it to the Consultant, Contractor and others within DDC as he/she deems appropriate.

2.6 REPORTS:

- A. Daily Construction Reports: The Contractor shall submit to the Resident Engineer written Daily Construction Reports at the end of each work day, recording basic information such as the date, day, weather conditions, and contract days passed, remaining contract duration/days and the following information concerning the Project.

Information: The reports shall be prepared by the Contractor's Superintendent and shall bear the Contractor's Superintendents signature. Each report shall contain the following information:

1. List name of Contractor, subcontractors, their work force in each category, and details of activities performed.
2. The type of materials and/or major equipment being installed by the Contractor and/or by each subcontractor.
3. The major construction equipment being used by the Contractor and/or subcontractors.
4. Material and Equipment deliveries.
5. High and low temperatures and general weather conditions.
6. Accidents.
7. Meetings and significant decisions.
8. Unusual events.
9. Stoppages, delays, shortages, and losses.
10. Meter readings and similar recordings
11. Emergency procedures.
12. Orders and/or requests of authorities having jurisdiction.
13. Approved Change Orders received and implemented.
14. Field Orders and Directives received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial Completions and occupancies.
18. Substantial Completions authorized.

NOTE: If there is NO ACTIVITY at site, a daily report indicating so and the reason for no activity at the site must be submitted.

- B. Material Location Reports: The contractor shall submit a Material Location Report at weekly OR monthly intervals as determined and established by the Resident Engineer. Such report shall include a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit a Request For Information (RFI) form with a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.



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2.7 SPECIAL REPORTS:

- A. Accident report, incident report, special condition report for the conditions out of control of any party involved with the project effecting project progress, explaining impact on the project schedule and cost if any.

PART III – EXECUTION (Not Used)

END OF SECTION 01 32 00



**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 shall employ and pay for the services of a professional photographer who shall take photographs showing the progress of the work for all Contracts.

1.3 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SUBMITTALS:

- A. Qualification Data: For photographer.



- B. Key Plan: With each Progress Photograph Submittal include a key plan of Project site and building with notation of vantage points marked for location and direction of each image. Indicate location, elevation or story of construction. Include same label information as corresponding set of photographs.
- C. Construction Progress Photograph Prints: Take Progress Photographs bi-weekly and submit four color prints of each photographic view for each trade to the Resident Engineer. Such photographs shall be included in each monthly progress report or as otherwise directed by the Resident Engineer.
- D. Construction Photograph Negatives: Submit a complete set of photographic negatives in individually protected negative sleeves with each submittal of prints. Identify negatives with label matching photographic prints.
- E. Digital Images: If Digital Media is used, submit a complete set of digital color image electronic files on USB drive or other electronic media requested by the Commissioner with each submittal of prints. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, un-cropped.

1.5 QUALITY ASSURANCE:

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.6 COORDINATION:

- A. The Contractor and its subcontractor(s) shall cooperate with the photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.7 COPYRIGHT:

- A. The Contractor shall include the provisions set forth below in the agreement between the Contractor and the Photographer who will provide the construction photographs described in this section. The Contractor shall submit to the Resident Engineer a copy of its agreement with the Photographer.
- B. Any photographs, images and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to this Agreement, shall upon their creation become the exclusive property of the City.
- C. Any photographs, images and/or other materials provided pursuant to this Agreement ("Copyrightable Materials") shall be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Photographer hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Photographer shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Photographer for no purpose other than in the performance of this Agreement without the prior written permission of the City. The Department may grant the Photographer a license to use the Copyrightable Materials on such terms as determined by the Department and set forth in the license.
- D. The Photographer acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Photographer shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.



- E. The Photographer represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright Law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Photographer has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Agreement, copies of which shall be provided to the City.

PART II – PRODUCTS

2.1 PHOTOGRAPHIC MEDIA:

- A. Photographic Film: Medium format, 2-1/4 by 2-1/4 inches (60 by 60 mm).
- B. Digital Images:
1. Construction Progress Images: Color images in JPEG format with minimum sensor size of 1.3 megapixels.
 2. Presentation Quality Images: Provide Color images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 with 8"x10" original capture at 300 dpi or greater.
- C. Prints:
1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte color prints on single-weight commercial-grade stock paper, with 1inch wide margins and punched for standard 3-ring binder.
 2. Identification: On the front of each photograph affix a label in the margin with Project name and date photograph was taken. On the back of each print, provide an applied label or rubber-stamped impression with the following information:
 - a. Project Contract I.D. Number.
 - b. Project Contract Name.
 - c. Name of Contractor. (and Subcontractor Trade Represented)
 - d. Subject of Image Taken.
 - e. Date and time photograph was taken if not date stamped by camera.
 - f. Description of vantage point, indicating location, direction and other pertinent information.
 - g. Unique sequential identifier.
 - h. Name and address of photographer.

PART III – EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS:

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
1. Maintain key plan with each set of construction photographs that identifies each photographic location and direction of view.
- B. Film Images:
1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.



2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Commissioner.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in filename for each image.
 2. Field Office Images: Maintain one set of images on USB drive or other electronic media requested by the Commissioner in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Commissioner.

3.2 PRE-CONSTRUCTION & PRE-DEMOLITION PHOTOGRAPHS:

- A. Before commencement of Contract work at the site, take color photographs of Project site and surrounding properties, including existing structures or items to remain during construction, from different vantage points, as directed by the Resident Engineer.
1. Flag applicable excavation areas and construction limits before taking construction photographs.
 2. Take photographs of minimum eight (8) views to show existing conditions adjacent to property before starting the Work.
 3. Take applicable photographs of minimum eight (8) views of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required or directed by the Resident Engineer to record settlement or cracking of adjacent structures, pavements, and improvements.
- B. Demolition Operations: Take photographs as directed by the Resident Engineer of minimum of eight (8) views each before commencement of demolition operations, at mid-point of operations and at completion of operations.
- C. Pre-Demolition Photographs: Take archival quality color photographs, to include all exterior building facades, of all structures at the Project site designated to be fully demolished or removed in compliance with NYC Building Code requirements. Submit four (4) complete sets of pre-demolition photographs, in the format specified herein, to the Resident Engineer for submission to the Department of Buildings.

3.3 PERIODIC CONSTRUCTION PROGRESS PHOTOGRAPHS:

- A. Take photographs of minimum eight (8) views bi-weekly as directed by the Resident Engineer of construction progress for each contract trade. Select vantage points to show status of construction and progress since last photographs were taken.

3.4 SPECIAL PHOTOGRAPHS:

- A. The photographer shall take special photographs of subject matter or events as specified in other sections of the Project Specifications from vantage points specified or as otherwise directed by the Resident Engineer.
- B. Historical Elements: As required in Section 01 35 91, HISTORIC TREATMENT PROCEDURES, for Contract work at designated landmark structures or sites the photographer, as specified and required by individual sections of the Contract documents or at the direction of the Commissioner, shall take images of existing elements scheduled to be removed for replacement, repair or replication in quantities as directed, including post-construction photographs of completed work as directed by the Commissioner.
1. Take Presentation Quality Photographs of designated landmark structures as directed by the Commissioner for submission to the New York City Landmarks Preservation Commission. Provide a minimum of four color photographic prints of each view as directed.



3.5 VIDEO RECORDING:

- A. When Video Recording of Demonstration and Orientation sessions is required, the Contractor shall provide the services of a Videographer as indicated in Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

3.6 FINAL COMPLETION CONSTRUCTION PHOTOGRAPHS:

- A. Take color photographs of minimum eight (8) unobstructed views of the completed project or project and site, as directed by the Commissioner and after all scaffolding, hoists, shanties, field offices or other temporary work has been removed and final cleaning is done after date of Substantial Completion for submission as Project Record Documents. Submit four (4) sets of each view of Presentation Quality photographic prints including negatives and/or digital images electronic file.

END OF SECTION 01 32 33



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**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 – GENERAL:

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Coordination Drawings, Catalogue Cuts, Material Samples and other submittals required by the Contract Documents.
- B. Review of submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such submittals, nor from responsibility for complying with the requirements of the Contract.
- C. Responsibility of the Contractor: The approval of Shop Drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the work, nor of the furnishing of materials or work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings shall not be construed as approving departures from the Contract Drawings, Supplementary Drawings or Specifications.
- D. This Section includes the following:
1. Definitions
 2. Submission Procedures
 3. Coordination Drawings
 4. LEED Submittals
 5. Ultra Low Sulfur Diesel Fuel Reporting
 6. Construction Photographs and 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" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and



specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. Submittals: Written and graphic information that requires responsive actions and includes without limitation all shop drawings, product data, letters of certification, tests and other information required for quality control and as required by the Contract Documents.
- D. Informational Submittals: Written information that does not require responsive action. Submittals may be rejected for non-compliance with the Contract.
- E. Shop Drawings: Include drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, except for coordination drawings, specifically prepared for the project by the Contractor or any subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the work shall be fabricated and/or installed.
- F. Coordination Drawings: As required in Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.
- G. Product Data and Quality Assurance Submittals: Includes manufacturer's standard catalogs, pamphlets and other printed materials including without limitation the following:
 - 1. Catalogue and Product specifications
 - 2. Installation instructions
 - 3. Color charts
 - 4. Catalog cuts
 - 5. Rough-in diagrams and templates
 - 6. Wiring diagrams
 - 7. Performance curves
 - 8. Operational range diagrams
 - 9. Mill reports
 - 10. Design data and calculations
 - 11. Certification of compliance or conformance
 - 12. Manufacturer's instructions and field reports

1.5 COORDINATION DRAWINGS:

- A. The Contractor shall provide reproducible Coordination Drawing(s) of the reflective ceiling showing the integration of all applicable contract work, including general construction work as well as trade work (Plumbing, HVAC, and Electrical) to be performed by subcontractors. The Coordination Drawing(s) shall include, without limitation, the following information:
 - 1. General Construction work showing the reflective ceiling plan including starting points, ceiling and beam soffits elevations, ceiling heights, roof openings, etc.
 - 2. HVAC Contract work showing ductwork, heating and sprinkler piping, location of grilles, registers etc. and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column centerlines and/or walls.
 - 3. Plumbing Contract work including piping, valves, cleanouts etc., indicating locations and elevations and shall indicate the necessary access doors.
 - 4. Electrical Contract work indicating fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.



- B. The Contractor shall issue the completed Coordination Drawing(s) to the Resident Engineer for his/her review. The Resident Engineer may call as many meetings as necessary with the Contractor, including attendance by applicable subcontractors, and may call on the services of the Design Consulting where necessary, to resolve any conflicts that become apparent.
- C. Upon resolution of any conflicts, the Contractor shall provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) shall be signed and dated by the Contractor to indicate acceptance of the arrangement of the work.
- D. A reproducible copy of the Master Coordination Drawing(s) shall be provided by the Contractor to each of the appropriate subcontractor(s), the Resident Engineer and the Design Consultant for information.
- E. Shop Drawings shall not be submitted prior to acceptance of the final coordinated drawings and shall be prepared in accordance with the Master Coordination Drawing(s). No work will be permitted without accepted Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

1.6 SUBMITTAL PROCEDURES:

- A. Refer to Section 01 35 03 GENERAL MECHANICAL REQUIREMENTS and Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS for additional submittal requirements involving electrical and mechanical work or equipment of any nature called for the project.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activities, with the Submittal Schedule specified in Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - 3. The Commissioner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: The Submittals Schedule is set forth in Schedule F, which is included in the Addendum.
- D. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Design Consultant.
 - 3. Include the following minimum information on label for processing and recording action taken:
 - a. Project name, DDC Project Number and Contract Number
 - b. Date
 - c. Name and address of Design Consultant
 - d. Name and address of Contractor
 - e. Name and address of subcontractor
 - f. Name and address of supplier
 - g. Name of manufacturer
 - h. Submittal number or other unique identifier, including revision identifier
 - i. Number and title of appropriate Specification Section
 - j. Drawing number and detail references, as appropriate
 - k. Location(s) where product is to be installed, as appropriate
 - l. Other necessary identification
- E. Transmittal:



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1. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form in triplicate. Transmittals received from sources other than the Contractor will be returned without review. Re-submission of the same drawings or product data shall bear the original number of the prior submission and the original titles.
2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name, DDC Project number and Contract Number
 - b. Date
 - c. Destination (To:)
 - d. Source (From:)
 - e. Names of Contractor, subcontractor, manufacturer, and supplier
 - f. Category and type of submittal
 - g. Submittal purpose and description
 - h. Specification Section number and title
 - i. Drawing number and detail references, as appropriate
 - j. Transmittal number, numbered consecutively
 - k. Submittal and transmittal distribution record
 - l. Remarks
 - m. Signature of transmitter

F. Shop Drawings:

1. Procedures for Preparing, Forwarding, Checking and Returning all Shop Drawings shall be, generally, as follows:
 - a. The Contractor shall make available to its subcontractors the necessary Contract Documents and shall instruct such subcontractor to determine dimensions and conditions in the field, particularly with reference to coordination between the trade subcontractors. The Contractor shall direct its subcontractors to prepare Shop Drawings for submission to the Design Consultant in accordance with the requirements of these General Conditions. The Contractor shall also direct its subcontractors to "Ring Up" corrections made on all re-submissions for approval, so as to be readily seen, and that the symbol "sub" be used to identify the source of the correction or information that has been added.

The Contractor shall:
 1. Review and be responsible to the Commissioner, for information shown on its subcontractor's Shop and Installation drawings and manufacturers' data, and also for conformity to Contract Documents.
 2. "Ring Up" corrections made on all submissions for approval, so as to be readily seen, and that the symbol "GC", "PL", "HVAC" or "EL" be used to indicate that the correction and/or information added was made by the Contractor and/or its subcontractor(s).
 3. Clearly designate which entity is to perform the work when the term, "work by others" or other similar phrases are indicated on the Contract Drawings before submission to the Design Consultant.
 4. Stamp submissions "Recommended for Acceptance", date and forward to the Design Consultant.
2. The Contractor shall promptly prepare and submit project specific layout detail and Shop Drawings of such parts of the work as are indicated in the Specifications, Schedule F of the Addendum or as required. These Shop Drawings shall be made in accordance with the Contract Drawings, Specifications and Supplementary Drawings, if any. The Shop Drawings shall be accurate and distinct and give all the dimensions required for the fabrication, erection and installation of the work.
3. Size of Drawings: The Shop Drawings, unless otherwise directed, shall be on sheets of the same size as the Contract Drawings, drawn accurately and of sufficient scale to be legible, with a one half



(1/2) inch marginal space on each side and a two (2) inch marginal space for binding on the left side.

4. Scope of Drawings: Shop Drawings shall be numbered consecutively and shall accurately and distinctly represent all aspects of the work, including without limitation the following:
 - a. All working and erection dimensions
 - b. Arrangements and sectional views
 - c. Necessary details, including performance characteristics, and complete information for making necessary connections with other work
 - d. Kinds of materials including thickness and finishes
 - e. Identification of products
 - f. Fabrication and installation drawings
 - g. Roughing-in and setting diagrams
 - h. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring
 - i. Shop work manufacturing instructions
 - j. Templates and patterns
 - k. Schedules
 - l. Design calculations
 - m. Compliance with specified standards
 - n. Notation of coordination requirements
 - o. Notation of dimensions established by field measurement
 - p. Relationship to adjoining construction clearly indicated
 - q. Seal and signature of professional engineer if specified
 - r. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
 - s. All other information necessary for the work and/or required by the Commissioner
5. Titles and Reference: Shop Drawings shall be dated and contain:
 - a. Name of the Project, DDC Project Number and Contract Number
 - b. The descriptive names of equipment, or materials covered by the Contract Drawings and the classified item number or numbers, if any, under which it is, or they are required
 - c. The locations or points and sequence at which materials, or equipment, are to be installed in the work
 - d. Cross references to the section number, detail number and paragraph number of the Contract Specifications
 - e. Cross references to the sheet number, detail number, etc., of the Contract Drawings
6. Field Measurements: In addition to the above requirements, the Shop Drawings shall be signed by the Contractor and, if applicable, the subcontractor responsible for preparation of the Shop Drawings. Each Shop Drawing shall be stamped with the following wording:

FIELD MEASUREMENTS: The Contractor certifies that it has verified and supplemented the Contract Drawings by taking all required field measurements, which said measurements correctly reflect all field conditions and that this Shop Drawing incorporates said measurements.
7. Contractor's Statement with Submittal: Any Submittal by the Contractor for acceptance, including without limitation, all dimensional drawings of equipment, blueprints, catalogues, models, samples and other data relative to the equipment, the materials, the work or any part thereof, must be accompanied by a statement that the Submittal has been examined by the Contractor and that everything shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If there is any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, the Contractor shall, in its statement, list and clearly describe each such discrepancy.



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Acceptance will be given based upon the Contractor's representation that what is shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If the Contractor's statement indicates any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, such change is subject to review and prior written acceptance by the Design Consultant. In addition, such change may require a change order in accordance with Article 25 of the Contract. In the event any such change is approved, any additional expense or increased cost in connection with the change is the sole responsibility of the Contractor.

8. Submission of Shop Drawings:

- a. Initial Submission: The Contractor shall submit seven (7) copies of each Shop Drawing to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Shop Drawings to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory Shop Drawing will be stamped "No Exceptions Taken", be dated and distributed by the Design Consultant as follows:
- 1) Two (2) copies thereof will be returned to the Contractor by letter
 - 2) Three (3) copies of the approved Shop Drawing and copy of the transmittal letter to the Contractor will be forwarded to DDC
 - 3) One copy will be retained by the Design Consultant
 - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriate

Should the Shop Drawing(s) be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return the Shop Drawings to the Contractor with the necessary corrections and changes to be made as indicated thereon.

- b. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each shop drawing to the Design Consultant. The Contractor shall revise and resubmit the Shop Drawing as required by the Design Consultant until the Shop Drawings are stamped "No Exceptions Taken". However, Shop Drawings which have been stamped "Make Corrections Noted" shall be considered an "Acceptable" Shop Drawing and NEED NOT be resubmitted.
- c. Commencement of Work: No work or fabrication called for by the Shop Drawings shall be done until the acceptance of the said drawings by the Design Consultant is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractor's subcontractors which Shop Drawing indicated work related to, adjacent to, impinging upon, or affecting work to be done by other subcontractors shall be transmitted to the subcontractors so affected. [These accepted Shop Drawings shall be distributed to the affected subcontractors when required with a copy of the transmittal to the Resident Engineer.]
- d. Variations: If the Shop Drawings show variations from the Contract requirements because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in its letter of submittal. Acceptance of the Shop Drawings shall constitute acceptance of the subject matter thereof only and not of any structural apparatus shown or indicated.

G. Product Data:

1. General: Except as otherwise prescribed herein, the submission, review and acceptance of Product Data and Catalogue cuts shall conform to the procedures specified in Sub-Section 1.6 F, Shop Drawings.
2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
3. Mark each copy of each submittal to show which products and options are applicable.



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4. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - l. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 5. Submit Product Data before or concurrent with Samples.
 6. Submission of Product Data:
 - a. Initial Submission: The Contractor shall submit seven (7) sets of Product Data to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Product Data to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory catalogue cut will be stamped "No Exception Taken", be dated and distributed as follows:
 - 1) Two (2) copies thereof will be returned to the Contractor by letter
 - 2) Three (3) copies of the Product Data and copy of the transmittal letter to the Contractor will be forwarded to DDC
 - 3) One copy will be retained by the Design Consultant
 - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriateShould the Product Data be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return one (1) set of such Product Data to the Contractor with the necessary corrections and changes to be made indicated and one (1) set to DDC.
 7. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each Product Data for the review of the Design Consultant. The Contractor shall revise and resubmit the Product Data as required by the Design Consultant until the submission is stamped "No Exceptions Taken" by the Design Consultant. However, Product Data which has been stamped "Make Corrections Noted" shall be considered an "Accepted" Product Data and NEED NOT be resubmitted.
- H. Samples of Materials:
1. For samples of materials involving electrical work of any nature, refer to Section 00 35 06 - General Electrical Requirements.
 2. Samples shall be in triplicate, of sufficient size to show the quality, type, range of color, finish and texture of the material.
 3. Each of the samples shall be labeled as follows:
 - a. Name of the Project, DDC Project Number and Contract Number
 - b. Name and quality of the material



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- c. Date
 - d. Name of Contractor, subcontractor, manufacturer and supplier
 - e. Related Specification or Contract Drawing reference to the samples submitted
4. A letter of transmittal, in triplicate, from the Contractor requesting acceptance must accompany all such samples.
 5. Transportation charges to the Design Consultant's office must be prepaid on all samples forwarded.
 6. Samples for testing purposes shall be as required in the Specifications.
 7. Samples on Display: When samples are specified to be equal to approved product, they shall be carefully examined by the Contractor and by those whom the Contractor expects to employ for the furnishing of such materials.
 8. Timely Submissions Log/Schedule: Samples shall be submitted in accordance with approved Shop Drawing log so as to permit proper consideration without delaying any operation under the project. Materials should not be ordered until acceptance is received, in writing, from the Design Consultant. All materials shall be furnished equal in every respect to the accepted samples.
 9. The Acceptance of any samples will be given as promptly as possible, and shall be only for the characteristic color, texture, strength, or other feature of the material named in such approval, and no other. When this approval is issued by the Design Consultant, it is done with the distinct understanding that the materials to be furnished will fully and completely comply with the Specifications, the determination of which may be made at some later date by a laboratory test or by other procedure. Use of materials will be permitted only so long as the quality remains equal to the approved samples and complies in every respect with the Specifications, and the colors and textures of the samples on file in the office of the Design Consultant, for the project.
 10. Acceptability of test Data: The Commissioner will be the final judge as to acceptability of laboratory test data and performance in service of materials submitted.
 11. Valuable Samples: Valuable samples, such as hardware, plumbing and electrical fixtures, etc., not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the work after all questions of acceptability have been settled, providing suitable permanent records are made as to the location of the samples, their properties, etc.
 12. Equivalent Quality: Any material, article and/or equipment which is designated in the Drawings and/or Specifications by a number in the catalogue of any manufacturer or by a manufacturer's grade or trade name is designated for the purpose of describing the material, article and/or equipment and fixing the standard of performance and/or function, as well as the quality and/or finish. Any material, article and/or equipment which is other than what is specified in the Drawings and/or Specifications will only be accepted if the Commissioner makes a written determination that such material, article and/or equipment is equivalent to that which is specified in the Drawings and/or Specifications.
 13. The submission of any material, article and/or equipment as the equal of any material, article and/or equipment set forth in the Drawings and/or Specifications as a standard shall be accompanied by any and all information essential for determining whether such proposed material, article and/or equipment is equivalent to that which is specified. Such information shall include, without limitation, illustrations, drawings, descriptions, catalogues, records of tests, samples, as well as information regarding the finish, durability and satisfactory use of such proposed material, article and/or equipment under similar operating conditions.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7

1.7 LEED SUBMITTALS:

- A. Comply with submittal requirements specified in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL; Section 01 81 13.03, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS; or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS, as applicable; Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED v3 BUILDINGS; Section 01 81 19, INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS and Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/or section 01 91 15 BUILDING ENCLOSURE COMMISSIONING REQUIREMENTS.
- B. LEED Building submittal information shall be assembled into one package per each applicable specification section, separate from all other non-LEED submittals. Each submittal package shall have a separate transmittal and identification as described in Sub-Section 1.5 herein.
- C. Number of Copies: Submit FOUR (4) copies of LEED submittals, in accordance with procedure described in Article 1.5 herein, unless otherwise indicated.
- D. Material Safety Data Sheets (MSDSs) for LEED Certification: Submit information necessary to show compliance with LEED certification requirements, which will be the limit of the Design Consultant's review for LEED compliance.
 - 1. Designated LEED submittals that include non-LEED MSDS data will not be reviewed. The entire submittal will be returned for re-submission.
- E. Product Cut Sheets and/or Shop Drawings for LEED Certification: Provide product cut sheets and/or shop drawings with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project. For detailed requirements refer to Sub-Section 1.6 of Section 01 81 13.03 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 Sub-Section 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, Sub-Section 1.5 E, the Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel and Best Available Technology (BAT) in Non road Vehicles. Submission of such reports shall be in accordance with the schedule, format, directions and procedures established by the Commissioner.

1.9 CONSTRUCTION PHOTOGRAPHS AND 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.



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PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 33 00



**SECTION 01 35 03
GENERAL MECHANICAL REQUIREMENTS**

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 03

PART 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 shall be followed by the Contractor, as well as its subcontractor for HVAC work. This Section sets forth the General Requirements applicable to mechanical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Specifications and/or the Contract Drawings, whichever requirement is the most stringent, as determined by the Commissioner, shall take precedence.

1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS
- D. Section 01 42 00 REFERENCES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. **CONCEALED PIPING AND DUCTS** -: shall mean piping and ducts hidden from sight in masonry or other construction, in floor fill, trenches, partitions, hung ceilings, furred spaces, pipe shafts and in service tunnels not used for passage. Where piping and ducts run in areas that have hung ceilings, such piping and ducts shall be installed in the hung ceilings. For work on existing piping any insulation on such existing piping is to be tested for asbestos and abated, if found to be positive by a certified asbestos contractor. Such testing and abatement shall occur prior to the performance of any work on these pipes.

1.5 SUBMITTALS:

- A. **INTENT OF MECHANICAL CONTRACT DRAWINGS** – Mechanical Contract Drawings are in part diagrammatic and show the general arrangement of the equipment, ducts and piping included in the Contract and the approximate size and location of the equipment.
- B. The Contractor shall follow these Contract Drawings in laying out the work and verify the spaces in which it will be installed. The Contractor shall submit, as directed, Mechanical Shop Drawings, roughing drawings, manufacturer's Shop Drawings, field drawings, cuts, bulletins, etc., of all materials, equipment and methods of installation shown or specified in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.



1. Submit sheet metal shop standards. Submit manufacturer's product data including gauges, materials, types of joints, scaling materials and installations for metal ductwork materials and products.
2. Submit scaled layout drawing (3/8"=1') of metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, slopes of horizontal runs, wall and floor penetrations and connections. Show modifications of indicated requirements made to conform to local shop practice and how those modifications ensure that free area, materials and rigidity are not reduced. Layouts should include all the room plans, mechanical equipment rooms and penthouses. Method of attachment of duct hangers to building construction all with the support details. Coordinate shop drawings with related trades prior to submission.
3. Indicate duct fittings, particulars such as gauges, sizes, welds and configuration prior to start of work for low-pressure systems.
4. Submit maintenance data and parts lists for metal ductwork materials and products. Include this data, product data and shop drawings in maintenance manual.

1.6 ACCESSIBILITY:

- A. All work shall be installed by the Contractor so as to be readily accessible for inspection, operation, maintenance and repair. Minor deviations from the arrangement indicated on the Contract Drawings may be made to accomplish this, but they shall not be made without approval by the Commissioner.

1.7 CHANGES IN PIPING, DUCTS, AND EQUIPMENT:

- 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 shall 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 shall be thoroughly cleaned by the Contractor of all dirt, cuttings and other foreign substances. Should any pipe, duct or other part of the several systems be obstructed by any foreign matter, the Contractor will be required to pay for disconnecting, cleaning and reconnecting wherever necessary for the purpose of locating and removing obstructions. The Contractor shall pay for repairs to other work damaged in the course of removing obstructions. For work on existing piping, ducts and equipment the Contractor shall pay special attention during this task so as not to disturb the insulation on such piping, ducts or equipment.

1.9 STANDARDIZATION OF SIMILAR EQUIPMENT:

- A. Unless otherwise particularly specified, all equipment of the same kind, type or classification, and used for identical purposes, shall be the product of one (1) manufacturer.

1.10 SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR:

- A. Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor shall be designed by an Engineer licensed in New York State retained by the Contractor. Supporting structures shall be built by the Contractor of sufficient strength to safely withstand all stresses to which they may be subjected, within permissible deflections, and shall meet the following standards:



1. Structural Steel - ASTM Standard Specifications, AISC and New York City Construction Codes.
2. Concrete for supports for equipment shall conform to the Specifications for concrete herein, but in no case shall be less than the requirements of the New York City Construction Codes for average concrete.
3. Steel reinforcement for concrete shall be of intermediate grade and shall meet the requirements of the Standard Specifications for Billet Steel-Concrete Reinforcement Bars, ASTM.
4. Drawings and calculations shall be submitted for review and acceptance in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

1.11 ELIMINATION OF NOISE:

- A. All systems and/or equipment provided under the Contract shall operate without objectionable noise or vibration.
- B. Should operation of any one or more of the several systems produce noise or vibration which is, in the opinion of the Commissioner, objectionable, the Contractor shall at its own expense make changes in piping, equipment, etc. and do all work necessary to eliminate objectionable noise or vibration.
- C. Should noise or vibration found objectionable by the Commissioner be transmitted by any pipe or portions of the structure from systems and/or equipment installed under the Contract, the Contractor shall at its own expense install such insulators and make such changes in or additions to the installations as may be necessary to prevent transmission of this noise or vibration.

1.12 PRELIMINARY FIELD TEST:

- A. As soon as conditions permit, the Contractor shall furnish all necessary labor and materials for, and shall make, preliminary field tests of the equipment to ascertain compliance with the requirements of the Contract. If the preliminary field tests disclose equipment that does not comply with the Contract, the Contractor shall, prior to the acceptance test, make all changes, adjustments and replacements required.

1.13 INSTRUCTIONS ON OPERATION:

- A. At the time the equipment is placed in permanent operation by the City, the Contractor shall make all adjustments and tests required by the Commissioner to prove that such equipment is in proper and satisfactory operating condition. The Contractor shall instruct the City's operating personnel on the proper maintenance and operation of the equipment for the period of time called for in the Specifications.

1.14 CERTIFICATES:

- A. On completion of the work, the Contractor shall obtain certificates of inspection, approval, acceptance and of compliance with all laws from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES. The work shall not be deemed substantially complete until the certificates have been delivered. See General Comments regarding problems with specifying items required for substantial completion.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 35 03



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**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, shall take precedence.
- B. This Section includes the following:
1. Procedure for Electrical Approval
 2. Submittals
 3. Electrical Installation Procedures
 4. Electrical Conduit System Including Boxes (Pull, Junction and Outlet)
 5. Electrical Wiring Devices
 6. Electrical Conductors and Terminations
 7. Circuit Protective Devices
 8. Distribution Centers
 9. Motors
 10. Motor Control Equipment
 11. Schedule of Electrical Equipment

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|---------------------------------|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| C. | Section 01 35 03 | GENERAL MECHANICAL REQUIREMENTS |
| D. | Section 01 42 00 | REFERENCES |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |

1.4 DEFINITIONS:

- A. **WIRING:** means both wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).
- B. **POWER WIRING:** means wiring from a panel board or other specified source to a starter (if required) then to a disconnect (if required), then to the final point of usage such as a motor, unit or device.



- C. CONTROL and/or INTERLOCK WIRING: means that wiring that signals the device to operate or shut down in response to a signal from a remote control device such as a temperature, smoke, pressure, float, etc. device (starters and disconnect switches are not included in this definition) regardless of the voltage required for the controlling device.
- D. RIGID STEEL CONDUIT: shall mean rigid steel, heavy wall conduit that is hot dipped galvanized inside and outside. The conduit shall meet the requirements of the latest edition, as amended, of the "Standard for Rigid Steel Conduit" of the Underwriters' Laboratories, Inc. Unless otherwise specified in the Specifications or indicated on the Contract Drawings, rigid steel conduit shall be used for all exposed work, for all underground conduits in contact with earth and for fire alarms systems, as required by the New York City Construction Codes.
- E. ELECTRICAL METALLIC TUBING (EMT): shall mean industry standard thin wall conduit of galvanized steel only. All elbows, bends, couplings and similar fittings which are installed as a part of the conduit system shall be compatible for use with electric metallic tubing. Couplings and terminating fittings shall be of the pressure type as approved by the Commissioner. Set screw fittings will not be acceptable. EMT shall meet the requirements of the latest edition, as amended, of the "Standard for Electrical Metallic Tubing of the Underwriters Laboratories Inc." EMT may only be used where specifically indicated. In no case will EMT be permitted in spaces other than hung ceilings and dry wall partitions.
- F. FLEXIBLE METALLIC CONDUIT (FMC): Shall mean a conduit made through the coiling of a self-interlocking ribbed strip of aluminum or steel, forming a hollow tube through which wires can be pulled. For final connections to motors and motorized equipment, not more than a 4' - 0" length of flexible conduit may be used. For watertight installations, this conduit shall be of a watertight type, attached with watertight glands or fittings for final connections from outlet box to recessed lighting fixtures and in locations only where specifically permitted by the Specifications or Contract Drawings.

1.5 PROCEDURE FOR ELECTRICAL APPROVAL:

This Sub-Section sets forth General Electrical information, as well as required approvals for all electrical work required for the Project, including ancillary electrical work which may be included in the work of other trade subcontractors.

- A. ELECTRIC SERVICE: The electric service supply is subject to commercial and operating variation of the utility company. Proper provision shall be made to have all apparatus operate normally under these conditions.
- B. ACCEPTANCE: Acceptance and approval of the work will be contingent upon the inspection and test of the installation by the City regulatory agency.
- C. TESTS: The Contractor shall notify the Commissioner when the Contractor has completed the work and is ready to have it inspected and tested. Upon completion of the work tests shall be made as required by the Commissioner of all electrical materials, electrical and associated mechanical equipment, and of appliances installed hereunder. The Contractor shall furnish all labor and material for such tests. Should the tests show that any of the material, appliances or workmanship is not first class or not in compliance with the Contract, the Contractor on written notice shall remove and promptly replace them with other materials in conformity with the Contract.
- D. CERTIFICATE OF THE BUREAU OF ELECTRICAL CONTROL, OF THE DEPARTMENT OF BUILDINGS (B.E.C.): The Contractor must file prior to requesting a substantial completion inspection a Certificate of Inspection issued by B.E.C. On completion of the work the Contractor shall obtain certificates of inspection, approval, acceptance and compliance from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES.
- E. RESPONSIBILITY FOR CARE AND PROTECTION OF EQUIPMENT:



1. The Contractor furnishing any equipment shall be responsible for the equipment until it has been finally inspected, tested and accepted, in accordance with the requirements of the Contract.
 2. After delivery and before and after installation, the Contractor shall protect all equipment against theft, injury or damage from all causes. The Contractor shall carefully store all equipment received for work, which is not immediately installed. If any equipment has been subject to possible injury by water, it shall be thoroughly dried out and put through a special dielectric test as directed by the Commissioner, at the expense of the Contractor or replaced by the Contractor without additional cost to the City.
- F. **UNIFORMITY OF EQUIPMENT:** Any two (2) or more pieces of equipment, apparatus or materials of the same kind, type or classification which are intended to be used for identical types of service, shall be made by the same manufacturer.

1.6 SUBMITTALS:

A. CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL:

1. The Contractor shall submit to the Commissioner for approval, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, complete dimensional drawings of all equipment, wiring diagrams, motor test data, details of control, installation layouts showing all details and locations and including all schedules, and descriptions and supplementary data to comprise complete working drawings and instructions for the performance of the work. A description of the operation of the equipment and controls shall be included. A letter, in triplicate, shall accompany each submittal.
 2. The Contractor shall submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, duplicate samples of such materials and appliances as may be requested by the Commissioner for approval. These samples shall be properly tagged for identification and submitted for examination and test. After the samples are approved, one (1) sample will be returned to the Contractor and the other sample will be filed in the office of the Commissioner's representative for inspection use. After the Contract is completed, the second set of samples will be returned to the Contractor.
- B. **TIMELINESS:** All material shall be submitted in accordance with the submittal schedule in sufficient time for the progress of construction. Failure to promptly submit acceptable samples and dimensional drawings of equipment will not be accepted as grounds for an extension of time. The Commissioner may decline to consider submittals unless all related items are submitted at the same time.
- C. **CONTRACTOR'S STATEMENT WITH SUBMITTALS:** Contractor shall submit statement in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- D. **BULLETINS AND INSTRUCTIONS:** The Contractor shall furnish and deliver to the Commissioner in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS and Section 01 77 00, CLOSEOUT PROCEDURES, after acceptance of the work, four (4) complete sets of instructions, technical bulletins and any other printed matter (diagrams, prints, or drawings) required to provide complete information for the proper operation, maintenance and repair of the equipment and the ordering of spare parts.



PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 ELECTRICAL INSTALLATION PROCEDURES:

This Sub-Section sets forth the General Installation Procedure that shall apply to all electrical work and electrical equipment appearing in the Contract.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

- A. **INTENT OF CONTRACT DOCUMENTS:** The Drawings and Specifications are to be interpreted as a means of conveying the scope and intent of the work without giving every minor electrical detail. It is intended, nevertheless, that the Contractor shall provide whatever labor and materials are found necessary, within the scope of the Contract, for the successful operation of the installation. Specific details of individual installations are to be finally decided upon when the Contractor submits Working or Shop Drawings for approval to DDC. Whenever there are two (2) or more methods to complete project work within the Contract scope, the Commissioner reserves the right to choose that method which, in the Commissioner's opinion, will afford the most satisfactory performance, lasting qualities, and accessibility for repairs, even though this selection is the most costly.
- B. **SCHEMATIC PLANS – APPROXIMATE LOCATIONS:** Conduits and wiring are shown on the plans for diagrammatic purposes only. Therefore, conduit layouts may not necessarily give the actual physical route of the conduits. The Contractor who installs a conduit system will also be required, as part of the work, to furnish and install all hangers and pull-boxes, including any special pull-boxes found necessary to overcome interferences, and to facilitate the pulling of electrical cables. Similarly, the locations of equipment, appliances, outlets and other items shown on Contract Drawings are only approximate and are to be definitively established when equipment Shop Drawings are submitted and approved by DDC during construction.
- C. **SLEEVES:** required for conduits passing through walls or floors, shall be furnished and set by the Contractor installing the conduits. Sleeves in waterproofed floors shall be provided with flashing extending 12 inches in all directions from sleeve and secured to waterproofing. Flashing shall be turned down into space between pipe and sleeve and caulked watertight. Flashing shall be 20 oz. cold rolled copper. Sleeves shall be supplied with welded flanges similar to those supplied by the subcontractor for Plumbing Work and shall extend one (1) inch above finished floor.
- D. **COORDINATION:** The Contractor shall keep in close touch with the construction progress and obtain the necessary information for the accurate placement of its work in ample time before project construction operations obstruct its work. The Contractor is to consult all other Contract Drawings, as well as approved equipment Shop Drawings on file in the Resident Engineer's Field Office. This will aid in avoiding interferences, omissions and errors in the electrical installation.
- E. **RESTORATION:** If drilling or cutting is done on finished surfaces of equipment or the structure, any marring of the surface shall be repaired or replaced by the Contractor. The Contractor shall be held responsible for corrective restoration due to its cutting or drilling, and for any damage to the project or its contents caused by the Contractor or the Contractor's workers. If any piercing of waterproofing occurs because of the installation of the work, the Contractor shall restore the waterproofing, at its own expense, to the satisfaction of the Commissioner.
- F. **ELECTRICAL WORK AT SITE:** The Contractor furnishing equipment consisting of a number of related electrical devices or appliances, mounted in a single enclosure, or on a common base, shall furnish this unit complete with internal wiring, connections, terminal boxes with copper connectors and/or lugs and ample electrical leads, ready for connection and operation. The cost of any wiring, re-wiring or other work



required to be done on this unit in the field, shall be borne by the Contractor, without additional cost to the City.

- G. **COOPERATION AMONG SUBCONTRACTORS:** Whenever an electrically operated unit or system involves the combined work of several subcontractors for its installation and successful operation, the Contractor shall require each subcontractor to exercise the utmost diligence in cooperating with others to produce a complete, harmonious installation.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2

3.2 ELECTRICAL CONDUIT SYSTEM INCLUDING BOXES (PULL, JUNCTION AND OUTLET):

This Sub-Section sets forth the requirements applying to the installation of electrical conduits, boxes or fittings. Rigid steel conduit shall be used throughout, unless otherwise directed by the Commissioner. Where the word 'conduit', without a modifier such as, rigid steel, EMT, etc., is specified to be used, it shall be interpreted to mean, rigid steel, heavy wall, threaded conduit.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

A. INSTALLATIONS AND APPLICATIONS:

1. Unless otherwise specified or indicated on the Contract Drawings, conduit runs shall be installed concealed in finished spaces.
2. **CONDUIT SIZES:** The sizes of conduit shall be as indicated on the Contract Drawings. Wherever conduit sizes are not indicated, the conduit shall meet the requirements of the New York City Electrical Code to accommodate the conductors to be installed therein.
3. Conduits shall be reamed smooth after cutting. No running threads will be permitted. Universal type couplings shall be used where required. Conduit joints shall be screwed up to butt. Empty conduits after installation shall have all open ends temporarily plugged to prevent the entrance of water or other foreign matter.
4. Conduits being installed in concrete or masonry shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.
5. **UNDERGROUND STEEL CONDUITS:** Unless otherwise specified, all underground steel conduits in contact with earth shall be encased by the Contractor who installs them, in a covering of not less than two (2) inches of an approved concrete mixture. Concrete mix shall be one (1) part cement to four and one-half (4 ½) parts of fine and coarse aggregate.
6. **EXCAVATION RESTORATION PERMITS:** When installing underground conduits, duct banks or manholes the Contractor shall perform the work of cutting pavement, excavation shoring, keeping trenches or holes pumped dry, backfilling, restoration of surfaces to original condition and removal of excess earth and rubbish from premises. During the work, the Contractor shall provide adequate crossovers, protective barriers, lamps, flags, etc., to safeguard traffic and the public. When the work is in a public highway or street, the Contractor shall secure and pay for all necessary permits and inspection fees and pay the cost of repaving.
7. **EXPOSED CONDUIT SUPPORTS:** Exposed conduit shall be supported by Galvanized hangers with necessary inserts, beam clamps of approved design or attached to walls or ceilings by



- expansion bolts. Exposed conduits shall be supported or fastened at intervals not more than five (5) feet.
8. Exposed conduit shall be installed parallel or at right angles to ceiling, walls and partitions. Where direction changes of exposed conduit cannot be made with neat bends, such as required around beams or columns, conduit type fitting shall be used.
 9. The conduit shall be installed with an approved expansion joint:
 - a. Wherever the conduit crosses a building expansion joint the Contractor will be held responsible for determining where the building expansion joints are located.
 - b. Every 200 feet, when in straight runs of 200 feet or longer.
 10. Conduit may only enter and leave a floating slab in the vertical direction, and then only in an approved manner. Horizontal entries into floating slabs are not permitted.
 11. Conduit installed in pipe shafts shall be properly supported to carry the total weight of the raceway system complete with cable. In addition at least one (1) horizontal brace per 10 ft. section shall be provided to assure stability of the raceway system.
 12. **BUSHINGS AND LOCKNUTS:** Approved bushings and locknuts shall be used wherever conduits enter outlet boxes, switch boxes, pull boxes, panel board cabinets, etc.
 13. **CONDUIT BENDS:** shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of two (2) inch in diameter or larger shall be made with an hydraulic or power pipe bender. The radius of the inner edge of any bend shall not be less than six (6) times the internal diameter of the conduit where rubber covered conductors are to be installed, and not less than 10 times the internal diameter of the conduit where lead covered conductors are to be used. Long gradual sweeps will be required, rather than sharp bends, when changes of direction are necessary.
 14. **EMPTY CONDUITS**
 - a. **TESTS:** All conduits and ducts required to be installed and left empty shall be tested for clear bore and correct installation by the Contractor using a ball mandrel and a brush and snake before the installation will be accepted. The ball shall be turned to approximately 85% of the internal diameter of the raceway to be tested. Two (2) short wire brushes shall be included in the mandrel assembly. Snaking of conduits, ducts, etc., shall be performed by the Contractor in the presence of the Resident Engineer. Any conduits or ducts which reject the mandrel shall be cleared at once with the Contractor bearing all costs, such as chopping concrete, to replace the defective conduit and restore the surface to its original condition.
 - b. **TAGS:** Numbers or letters shall be assigned to the various conduit runs, and as they test clear they shall be identified by a fiber tag not less than 1-¼ inch width, attached by means of a nylon cord. All conduit terminations in panel, splice or pull boxes as well as those out of the floor or ceiling shall be tagged.
 - c. **TEST RECORDS:** As the conduit runs clear, a record shall be kept under the heading of "Empty Conduit Tested, Left Clear, Tagged and Capped" showing conduit designation, diameter, location, date tested and by whom. When complete, this record shall be signed by the Resident Engineer and submitted in triplicate for approval. This record shall be entered on the Contract Record Drawings under Section 01 78 39, CONTRACT RECORD DOCUMENTS.
 - d. **CAPPING:** All empty conduit and duct openings, after test, shall be capped or plugged by the Contractor as directed.
 - e. **DRAG LINES:** A drag line shall be left in all empty conduit.



B. BOXES:

1. The Contractor shall furnish and erect all pull boxes indicated on the plans or where required. Sides, top and bottom of pull boxes shall be Galvanized coated and shall be built of No. 12 USSG steel reinforced at corners by substantial angle irons and riveted or welded to plates. Bottom or side of pull boxes shall be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations shall have threaded hubs and gaskets and be NEMA 4X. All pull boxes shall be suspended from ceiling or walls in the most substantial manner.
2. In centering outlets, the Contractor is cautioned to allow for overhead pipes, ducts and other obstructions, and for variations in arrangement and thickness of fireproofing, soundproofing and plastering. Precaution should be exercised regarding the location of window and door trims, paneling, etc. Mistakes resulting from failure to exercise precaution must be corrected by the Contractor at no additional cost to the City. Outlets in hung ceilings shall be supported from the black iron or structure.
3. The exact location of all outlets in finished rooms shall be as directed. When the interior finish has been applied, the Contractor shall make any necessary adjustment of its work to properly center the outlets. All outlet boxes for local switches near doors shall be located at the strike side of doors as finally hung, whether so indicated on the drawings or not.
4. Exposed wall outlet boxes shall be erected neatly and tight against the walls and securely anchored to same.
5. All wall outlets of each type shall be set accurately at the same level on each floor, except where otherwise specified or directed. Where special conditions occur, outlets shall be located as directed.
6. **MOUNTING HEIGHTS:** The following heights are standard heights and are subject to correction due to coordination with Contract Drawings. All such changes must be approved by the Resident Engineer. Heights given are from finished floor to center line of outlet or device on wall or partition, unless otherwise indicated.
 - a. General Convenience Outlets
(mount vertical) 1'-6"
 - b. Clock Outlets 8'-6" or 1'-6" below ceiling
 - c. Wall Lighting Switches 4'-0"
 - d. Motor Controllers 5'-0"
 - e. Motor Push-button 4'-2"
 - f. Telephone Outlets As Directed
 - g. Fire Alarm Bells 8'-6" or 1'-6" below ceiling
 - h. Fire Alarm Stations 4'-0"
 - i. Intercom Outlet 1'-6"
 - j. Cooking and Refrigerator Unit As Directed
7. Outlet boxes shall be of approved design and construction; of form and dimensions suited and adapted to its specific location; the kind of fixture to be used and the number and arrangements of conduits, etc., connecting therewith. All ferrous outlet boxes shall meet the requirements for zinc coating as specified under Electrical Conduit Systems.
8. There shall be knockouts opened only for the insertion of conduit. Any outlet boxes with more openings than are necessary for conduit insertion shall be sealed by the Contractor without additional charge.



9. All outlet boxes and junction boxes for exposed work shall be galvanized cast iron or cast aluminum with threaded openings. Outlet boxes for exposed inside work in damp locations shall be galvanized cast iron or cast aluminum with threaded hubs and neoprene gaskets.
10. Junction boxes shall not be less than 4 11/16" square and shall be equipped with zinc coated plates. Where plates are exposed they shall be finished to match the room decor.
11. **FIXTURE SUPPORTS:** Outlet boxes supporting lighting fixtures shall be equipped with fixture studs held by approved galvanized stove bolts or integral with the box. Cast iron or malleable boxes shall have four (4) tapped holes for mounting required cover or fixtures.
12. Outlet boxes exposed to the weather or indicated W.P. shall be cast iron or cast aluminum and the covers made watertight with neoprene gaskets. The boxes shall have external lugs for mounting. Drilling of the body of the fitting for mounting will not be permitted. The cover screws shall be appropriate in size, non-corrodible and not less than four (4) in number for each box opening.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 ELECTRICAL WIRING DEVICES:

- A. **WALL SWITCHES** shall be of the best specification grade, quiet type, and shall have a rating of 20 Amperes at 277 volts, as manufactured by Bryant, Hubbell or approved equal. The mechanism shall be equipped with arc snuffers. They shall be of the tumbler type, single pole. Switches of the 3-way type shall have a similar rating.
- B. **RECEPTACLES:**
 1. **CONVENIENCE OUTLETS:** shall be of the best specification grade, duplex, two-pole, 3-wire, 20 Amperes at 125 volts. It shall have a grounding pole that shall be grounded to the conduit system. Receptacles shall be capable of both back and side wiring and shall have only one (1) grounding screw. Receptacles shall be Hubbell Cat. #5262 or approved equal.
 2. **HEAVY DUTY RECEPTACLE OUTLETS:** shall have the Ampere rating and the number of poles specified on the Contract Drawings and shall be Hubbell, Russell-Stoll, Bryant, AH & H or approved equal. Each outlet shall have a grounding pole, which shall be grounded to the conduit system.
 3. **FLOOR RECEPTACLES:** shall be Russell & Stoll #3040 or approved equal, to fit into floor box previously specified.
 4. **NAMEPLATES:** are required for all receptacles other than 120V.
- C. **CLOCK HANGERS:** Clock outlets for surface type clocks shall be equipped with a supporting hook and recessed faceplate to conceal the electrical cord.
- D. **WATERTIGHT DEVICES:** For installations exposed to weather or in damp locations, the devices shall be in a gasketed, cast iron enclosure.
- E. **PLATES:**
 1. Every convenience outlet and switch outlet shall be covered by means of a stainless steel No. 302 - 0.4" antimagnetic plate with an approved finish, unless provided otherwise in the detailed Specifications.
 2. Where two (2) or three (3) switches are grouped together, a single faceplate shall be used. Where more than three (3) switches are located at one (1) point, the faceplates may be made up in multiple units.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4

3.4 ELECTRICAL CONDUCTORS AND TERMINATIONS:

- A. **CONDUCTORS FOR LIGHT AND POWER** - All wire and cable shall be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation shall be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees C. for both wet and dry locations. Wires No. 8 or larger shall be stranded. Wires and cables shall also be subject to the requirements of the NYCEC. Cables for incoming service or wire in conduits contiguous with the earth or in concrete or other damp or wet locations shall be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and shall be equal to UL Type USE and rated for 600 volts at 75 degrees C. for both wet and dry locations.
- B. **FIXTURE WIRE:** Lighting fixtures shall be wired with No. 14 gauge wire designated as AWM and rated at 105 degrees C.
- C. **OTHER TYPES:** Cables and wires for interior communication systems are described in applicable detailed Specifications.
- D. **MINIMUM SIZE:** Conductors smaller than No. 12 AWG shall not be used for light or power.
- E. **COLOR CODE:** Wires shall have a phase color code, and multiple conductor cables shall be color coded.
- F. **CABLE DATA:** The Contractor shall submit for approval the following information for each size and type of cable to be furnished.
 - 1. **Manufacture of Cable - Location of Plant.**
 - 2. **Minimum insulation resistance at standard test temperature.**
 - 3. **Days required for delivery to site of work after order to proceed with manufacture.**
- G. **ORIGINAL REELS:** Cable and wire shall be delivered to the site of the work on original sealed factory reels.
- H. **WIRE INSTALLATION:**
 - 1. **INSTALL WIRES AFTER PLASTERING** - Feeder and branch circuits wiring shall not be installed in conduit before the rough plastering work is completed. No conductors shall be pulled into floor conduits before floor is poured.
 - 2. **CONDUIT SECURED IN PLACE** - No conductor shall be pulled into any conduit run before all joints are made up tightly and the entire run rigidly secured in place.
 - 3. **WIRE ENDS** - All wires shall be left with sufficiently long ends for proper connection and stowing.
 - 4. **PULLING COMPOUNDS** - When required to ease the pulling-in of wires into conduit, only approved compounds as recommended by cable manufacturers shall be used.
 - 5. **PRESSURE CONNECTORS** - for wires shall be of the cast copper or forged copper pressure plate type. Connectors shall be O.Z., Burndy, National Electric Products or approved equal.
 - 6. Splices and feeder taps in the gutters of panel boxes shall be made by means of pressure plate type connectors encased in composition covers as manufactured by O.Z., Burndy, National Electric Products or approved equal.
 - 7. Splices in branch wiring for sound systems and fire systems, shall be first made mechanically secure, then soldered and taped.
 - 8. In lieu of soldered splices (except for sound and Fire Systems, which must have soldered splices) the following alternates are acceptable for operating temperatures up to 105 degrees C., for



fluorescent fixtures and for the splicing of branch circuit wiring up to No. 8 AWG wire:

- a. Mechanical splices made with mechanical connectors as manufactured by the Minnesota Manufacturing Company "Scotchlock" or approved equal. Mechanical connectors requiring a special tool (pressure connectors, insulators and locking rings) by Buchanan or approved equal. The tool used for connector application shall be as approved by the connector manufacturer.
 - b. For wire and cable No. 6 AWG and larger for branch circuit wiring the seamless tubular connector will only be accepted. Application of this connector shall be with a tool recommended by the connector manufacturer.
9. TAGS: All feeders and risers shall be tagged at both ends, and in all pull and junction boxes and gutter spaces through which they pass. Such tags shall be of fiber and have the feeder designation and size stamped thereon.
10. BRANCH CIRCUIT WIRING:
- a. The Contractor installing branch circuit wiring shall test the work for correct connections and leave all loop splices in the fixture outlet boxes properly spliced and taped. The Contractor shall provide wire ends long enough for convenient connection to device.
 - b. NEUTRALS: No common neutrals shall be used except for lighting branch circuits. Each neutral wire shall be terminated separately on a neutral busbar in the panelboard. No common neutrals will be permitted for convenience receptacle branch circuits.

I. TERMINATIONS

1. LUGS: All lugs for all devices and all cable terminations shall be copper. AL/CU rated lugs will not be permitted. The only exception to this requirement is when the particular device is not manufactured with copper lugs by any manufacturer. Lugs for No. 6 AWG cable and larger shall be cast copper or forged copper pressure plate type. Lugs for 1/0 and larger shall be fastened with two (2) bolts.
2. All lugs shall be of the proper size to accept the cable connected to them. Any subcontractor furnishing a device containing lugs is to coordinate with the Contractor to 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: shall be operable in any position and shall be of the quick-make, quick-break type on manual operation. The handle shall be trip free, preventing contacts from being held in closed position against abnormal overloads or short circuits. Positive visual indication of automatic tripped position of breaker shall be provided, in addition to the "On" and "Off" indication. All circuit breakers shall be of the bolted type.
2. TRIP RATING: Circuit breakers shall be provided with the required number of trip elements, calibrated at 40 degrees C., ambient temperature, in accordance with wire sizes or motor currents as shown on Contract Drawings or indicated in the Specifications.
3. POLE BARRIER: Multipole pole breakers shall be designed to break all poles simultaneously.



They shall be provided with barriers between poles and arc suppressing devices.

4. **ELEMENTS:** Multipole circuit breakers shall have frames of not less than a 100 Ampere rating. Multipole circuit breakers for 480 volts AC operation shall have an NEMA interrupting rating of 18,000 Amperes, unless a higher rating is specified in the Specific Requirements or indicated on the Contract Drawings.
5. For circuit breakers with frame size up to and including 225 Amperes, the breakers may be provided with non-interchangeable trip elements. For frame ratings above 225 Amperes, the breakers shall be provided with interchangeable trip elements, which can be replaced readily.
6. Single pole circuit breakers for branch circuits shall have a frame size of no less than 100 Amperes, and shall be rated at 125 volt A.C. with a NEMA interrupting rating of 10,000 Amperes, unless a higher rating is specified in the Specifications or indicated on the Contract Drawings.
7. **INVERSE TIME ACTION:** The circuit breakers shall be dual element type, one (1) element with time limit characteristics, so that tripping will be prevented on momentary overloads, but will occur before dangerous values are reached and the other with instantaneous trip action. Inverse time delay action shall be effective between a minimum tripping point of 125% of rating of breaker and an instantaneous tripping point between 600% and 700% of rated current.
8. **CONSTANCY OF CALIBRATION:** The tripping elements shall insure constant calibration and be capable of withstanding excessive short circuit conditions without injury.
9. **CONTACTS:** shall be non-welding under operating conditions and of the silver to silver type.
10. **TEMPERATURE RISE:** Current carrying parts, except thermal elements, shall not rise in temperature in excess of 30 degrees C. while carrying rated current at rated frequency.
11. **NUMBERING:** Each circuit breaker shall be distinctly numbered when installed in a group with other breakers. The calibration of trip element shall be indicated on each breaker.

B. SAFETY SWITCHES:

NEMA TYPE HD: When safety switches are permitted to be used for service entrance, motor disconnecting means or to control other types of electrical equipment, they shall be of the type HD of a rating not less than 30 Amperes. Enclosures shall be provided with means for locking. For ratings above 60 Amperes terminals shall have double studs.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.6

3.6 DISTRIBUTION CENTERS:

This Section sets forth the construction and installation procedure for Switchboards, Panel boards and Cabinets.

- A. **PANELBOARDS-GENERAL TYPE:** The panel boards shall be of the automatic circuit breaker type with individual breakers for each circuit, removable without disturbing the other units. Circuit breakers shall be in accordance with the requirements outlined under "Circuit Protective Devices."
- B. **NUMBER AND RATING OF CIRCUIT BREAKERS:** The Contract Drawings show a layout of each panel, giving the number, frame, size and trip setting of circuit breakers and number of branch circuits and spare breakers. Each branch circuit shall be distinctly numbered.
- C. **BUS-BAR CONSTRUCTION AND SUPPORT:** Panel Boards shall be of the dead front type and shall have bus bars and branch circuits designed to suit the system and voltage. Current carrying parts, exclusive of circuit breakers shall be copper and based on a maximum density of 1,000 Amperes per square inch. Bus bars for the main switchboard shall be designed for the frame rating of the Service Breaker. Bus bars shall run up the center of the panel, unless otherwise indicated, and shall have



connected thereto the various branch circuits. Unless otherwise specified, bus bars for each panel board shall be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers shall be used. A neutral bus of at least the same capacity as a live bus bar shall be provided for the connection of all neutral conductors. Each terminal shall be identified. All current carrying parts, exclusive of circuit breakers, shall be of copper with a minimum number of joints. The bus bar structure shall be a self-supporting unit, firmly fastened to a ½ inch plastic board, extending the full length and width of assembly which shall serve to insulate the bus structure from the back of panel box. Other methods affording equally effective bus structure support and insulation will be given consideration. An insulating barrier shall separate neutral bus from other parts of panel.

- D. **CIRCUIT BREAKER ASSEMBLY:** The entire circuit breaker and bus bar assembly shall be mounted on an adjustable metal base or pan and secured to the back of panel box. The panel shall have edges flanged for rigidity.
- E. **PANEL MOUNTING:** The panel shall be centered in the panel box to line up with door openings and set level and plumb so that no live parts are exposed with the door open.
- F. **PANEL CABINET:**
1. **PANEL CABINET INSTALLATION:** When installed surface mounted in panel closets they shall be mounted on Kindorf channel.
 2. Where cabinets cannot be set entirely flush due to shallow walls or partitions or where cabinet is extra deep, the protruding sides of cabinet shall be trimmed with a metal or hardwood return molding of approved design and fastened to cabinet so as to conceal the intersection between the wall and cabinet.
- G. **NAMEPLATES:** Nameplates where required, shall be made of engraved Lamicoide sheet, or approved equal. Letters and numbers shall be engraved white on a black background (except for Firehouse projects which shall have white letters on a red background). The Contractor shall submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates shall be of suitable size and shall also be provided at the top of the switchboard or section thereof and on the trim at the top of all lighting and power panels. Similar nameplates shall also be provided for each distribution circuit breaker giving the breaker number, the number of the feeder, and the name of the equipment fed.
- H. **SHOP DRAWINGS:** showing all details of boxes, panels, etc., shall be submitted for approval.
- I. **DIRECTORIES:** A directory shall be fastened with brass screws and consist of a noncorrosive metal frame with dimensions not less than five (5) inches x eight (8) inches and a transparent window of Plasticile, Plexiglass, Lucite, Polycarbonate or approved equal that is not less than 1/16 inch thick over cardboard or heavy paper. The directory shall be typewritten and show the number of each circuit, the name of circuit and lighting or equipment supplied. The size of riser feeder shall be as indicated on directory. The dimensions of directory shall be submitted for approval for each size of panel.
- J. **CONSTRUCTION**
1. **FINISH:** Panel boxes, doors and trim for installation in dry locations, shall be zinc coated after fabrication by the hot-dip galvanizing or electroplate process on inside and outside surfaces. In damp locations, panel boards shall be enclosed and gasketed NEMA 3R type. Panel boards located outdoors or exposed to the weather shall be NEMA 3X type.
 2. **PAINTING:** Panel boxes, doors and trim shall receive a coat of approved priming paint and a second coat of approved paint in the field after installation. Paint shall be applied to the inside and outside of boxes and on both sides of trim. Panel trims and doors shall receive a third or finishing coat on the outside after installation. Approval as to texture and color must be obtained before the final coat is applied.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.7

3.7 MOTORS:

This Section sets forth the general design, construction and performance requirements, which shall apply to all motors furnished in the Contract.

- A. **MOTOR DESIGN:** All motors shall be designed to comply with the New York State Energy Conservation Construction Code and the New York City Energy Conservation Code. In the event of any conflict or inconsistency between such codes, the New York City Energy Conservation Code shall prevail. Motors shall have standard NEMA frames and shall have nameplate ratings adequate to meet the specified conditions of operation. Motor performance under variable conditions of voltage and frequency shall be within the limits set in NEMA standards, unless modified in the Specifications. Motors shall be expressly designed for the hazard duty load, voltage and frequency as specified in the Contract. All motor windings shall be copper. All motors intended to operate on a 208 volt system shall be designed and rated for 200 volts.
- B. **STANDARDS OF COMPARISON:** In the absence of specific motor specifications, in general, the best standard products of the leading motor manufacturers shall be considered as a standard for comparison. The requirements of the NEMA standards for motors and generators shall be deemed to contain the minimum requirements of performance and design.
- C. **OBJECTIONABLE NOISES:** Objectionable noises will not be tolerated and exceptionally quiet motors may be required for certain specified locations. Noise control tests as per the New York City Construction Codes may be performed as directed by the Commissioner. Such motors shall bear a nameplate lettered "Quiet Motor." Springs and slip rings shall be of approved non-ferrous material.
- D. **BEARINGS:**
1. Bearings, unless specified otherwise, shall be of the ball or roller type. Motors one (1) horsepower and larger that are equipped with ball roller bearings shall also have lubrication of the pressure-relief greasing type. The Contractor furnishing four (4) or more such motors shall also furnish, as part of the Contract, a pressure grease gun of rugged design, of approximately 10 ounce capacity, complete with necessary adapters. The Contractor shall also provide 10 pounds of approved gun grease.
 2. For any particular unit where sleeve bearings are deemed desirable, permission for their use may be granted by the Commissioner. Motors one (1) horsepower and larger that are equipped with sleeve type bearings shall in addition to having protected accessible fittings for oiling be provided with visible means for determining normal oil level. Lubrication shall be positive, automatic and continuous.
- E. **MOTOR TERMINALS AND BOXES:** Each motor shall be furnished with flexible leads of sufficient length to extend for a distance of not less than three (3) inches beyond the face of the conduit terminal box. This box shall be furnished of ample size to make and house motor connections. These requirements shall be met irrespective of any other standards or practices. Size of cable terminals and conduit terminal box holes shall be subject to approval. For motors five (5) horsepower or larger, each terminal shall come with two (2) cast or forged copper pressure type connectors with bolts, nuts and washers. For motors of smaller ratings, connectors of other acceptable types may be furnished. For installations exposed to the weather or moist locations, terminal boxes shall be of cast iron with threaded hubs and gasketed covers. Cover screws shall be of non-corrosive material.
- F. **MOTOR TEMPERATURE RISES:** The motor nameplate temperature rises for the various types of motor enclosures shall be as listed below:
- | | |
|---|---------------|
| 1. Open Frame | 40 degrees C. |
| 2. Totally enclosed and enclosed fan cooled | 55 degrees C. |



3. Explosion proof and submersible 55 degrees C.
4. Partially enclosed and drip proof 40 degrees C.

The temperature of the various parts of a motor shall meet the requirements of NEMA standards for the size and type of the motors. Tests for heating shall be made by loading the motor to its rated horsepower and keeping it so loaded for the rated time interval or until the temperature becomes constant.

- G. **SPECIAL CODE INSTALLATIONS:** Electrical installations covered by special publications of NBFU and by special City rulings and regulations shall comply in design and safety features with such applicable codes, regulations and rulings, and shall be furnished and installed complete with all accessories and safety devices as therein specified.
- H. **MOTORS ON LIGHTING PANELS:** The largest A.C. motor permitted on branch circuits of lighting panels shall not exceed 1/4 horsepower.
- I. **MOTORS RATED:** ½ horsepower and larger shall be polyphase.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8

3.8 MOTOR CONTROL EQUIPMENT:

This Section sets forth the requirements for motor controllers and associated devices. Such requirements are applicable to all motor control equipment furnished or installed.

- A. **MANUFACTURER:** All control equipment furnished under the Contract shall be the product of a single manufacturer. Exceptions to this rule may be granted in the case of controllers for fractional horsepower motors driving special equipment, the various units of which have been engineered to obtain specific performance.
- B. **CONTROL ITEMS REQUIRED:** The Contractor furnishing motors shall also furnish therewith complete disconnecting, starting and control equipment as required by the detailed Specifications, the various code authorities and for the successful operation of the driven equipment. These items include circuit breaker, magnetic starter with overload protection and low voltage release or protection, push button stations, pilot lights and alarms, float, pressure, temperature and limit switches, load transfer switches, devices for manual operation and speed controllers, etc. The Contractor shall furnish as many of these items as are required for the successful operation of the driven unit.
 1. Where a motor is to be located out of sight of the controller, the Contractor shall furnish an approved disconnecting means to be mounted near motor.
- C. **TYPES OF STARTERS:**
 1. **SQUIRREL CAGE:** A.C. motors of the squirrel cage type, rated from one (1) to 30 horsepower, shall have magnetic across the line starters; motors rated above 30 horsepower shall be furnished with reduced voltage (autotransformer type) starter or part winding start with time delay to reduce inrush current. Size of starters shall be based on 200V operation.
 2. **SLIP RING:** A.C. Motors of the slip-ring type shall be furnished with primary across the line starters interlocked with secondary starting and regulating equipment. The interlocking feature shall prevent starting of the motor when the secondary controller is off the initial starting point.
 3. **MAGNETIC:** For fractional horsepower motors, magnetic type starters are not required unless the particular method of controlling the driven equipment makes them necessary. Where individual single phase fractional horsepower motors or the sum of fractional horsepower motors controlled by an automatic device are ½ horsepower or more, magnetic starters and circuit breakers shall be used. Single phase A.C. motors smaller than ½ horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle



switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower. Means for manual operation shall be provided.

- D. **DISCONNECTING BREAKER:** All motor starters, unless otherwise specified, shall be provided with a disconnecting means in the form of a circuit breaker of the type specified under Article 3.5 **CIRCUIT PROTECTIVE DEVICES**. This disconnecting means shall be contained in the same housing with the starter and shall be operable from outside. Means shall be provided for locking the handle of the circuit breaker in the "OFF" position if it is desired to take the equipment out of service and prevent unauthorized starting.
- E. **CONTROL CABINET: DRY LOCATIONS -** All starters shall be furnished with general purpose, NEMA Type 1, sheet metal enclosures with hinged covers and baked enamel finish.
- F. **CONTROL CABINET – WATERTIGHT:** In wet locations, cast iron watertight enclosures with threaded hubs, galvanized and gasketed hinged covers shall be provided.
- G.
 - 1. **PANELS:** Motor control devices and appliances shall be mounted on approved insulating slabs with all wiring and connections made on the back of the slabs.
 - 2. **WIRING AND TERMINALS:** Wiring connections for currents of 100 Amperes or less may be made with copper wire or cable with special flameproof insulating coverings. Such wires shall be installed in a neat workmanlike manner, flat against the slab, and held in place by clips. Connections shall be made with pressure connectors for No. 8 AWG and larger wires, and with grommets for small stranded wires. Except for incoming and outgoing main leads, all connections shall terminate on approved connector blocks, which may be installed on the face of the slab. For small, across the line starters, the above requirements may be modified if satisfactory connections are provided.
 - 3. **COPPER BUS:** For currents exceeding 100 Amperes, copper bus shall be used in place of wires. The bus shall be constructed of copper rods, tubing or flat strap, bent and shaped properly and securely attached to the slab in a neat and workmanlike manner. The cross section of copper shall provide sufficient areas to keep current density at not more than 1,000 Amperes per square inch.
- H. **COOPERATION:** The Contractor's subcontractor(s) who furnish electrically operated equipment shall give to the Contractor and the Contractor's electrical subcontractor full information relative to sizes and locations of apparatus furnished by them which require electrical connections.
- I. **SPARE PARTS:**
 - 1. **FURNISH:** The Contractor shall furnish the following spare parts pertaining to equipment furnished by each subcontractor.
 - One (1) set of contact fingers and springs and thermal elements for each three (3) (or fraction) of each size of magnetic contactor starter.
 - One (1) holding coil for each three (3) (or fraction) of each size of magnetic contactor starter.
 - 2. **WRAPPER MARKING:** All parts shall be delivered to the Resident Engineer neatly wrapped and boxed and plainly tagged and marked for identification and reordering.

END OF SECTION 01 35 06



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
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**SECTION 01 35 26
SAFETY REQUIREMENTS 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].
- 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" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 REQUIRED SAFETY MEETINGS:

- A. Prior to commencing construction, the Resident Engineer will schedule and hold a preconstruction kick-off meeting either at DDC's main office or at the Project site with representatives of the Contractor, including the principal on-site project representative and one or more safety representatives, Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract Safety requirements. The Contractor's safety requirements shall be reviewed, and implementation of safety provisions pertinent to the Work shall be discussed.
- B. The Contractor is responsible for conducting weekly documented jobsite safety meetings, given to all jobsite personnel including all subcontractors on the project, with the purpose of discussing safety topics and job specific requirements at the DDC worksite.



1.5 COMPLIANCE WITH REGULATIONS:

- A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirement for CFR Parts 1910 and 1926, and 40 CFR, Parts 61, 261, 761 and 763.
- B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.
- C. Work shall additionally comply with all applicable federal, state and local safety and health regulations.
- D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
- E. All workers working on the DDC project site are required by NYC Local Law 41 to complete the OSHA 10 –hour training course.

1.6 SUBMITTALS:

- A. The Contractor shall submit, to the Resident Engineer, copies of the Safety Program, Site Safety Plan and other required documentation in accordance with the *"New York City Department of Design and Construction Safety Requirements."*
- B. Permits: If hazardous materials are disposed of off-site submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations to the Resident Engineer.
- C. Accident Reporting: Submit a copy of each accident report to the Resident Engineer in accordance with the *"New York City Department of Design and Construction Safety Requirements."*
- D. All Asbestos and Lead project regulatory notifications are to be submitted to DDC's Office of Environmental and Geotechnical Services (OEGS) through the Resident Engineer.
- E. Request for Subcontractor Approval: Any subcontractor performing environmental work shall submit required documentation for approval to perform such work as required by DDC's 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 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.

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**SECTION 01 35 91
HISTORIC TREATMENT PROCEDURES**

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 91

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 the treatment of Landmark Structures and Landmark Quality Structures, as identified in the Addendum. Specific requirements are indicated in other sections of the Specifications.
- B. This Section includes, without limitation, the following:
1. Storage and protection of existing historic materials
 2. Temporary protection of historic materials during construction
 3. General Protection
 4. Protection during use of heat-generating equipment
 5. Photographic Documentation
 6. NYC Landmarks Preservation Commission Final Approval signoffs

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- C. Section 01 33 00 SUBMITTAL PROCEDURES
- D. Section 01 77 00 CLOSEOUT PROCEDURES
- E. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Landmark Structure or Site: Any building or site which has been designated as a landmark, or any building or site within a landmark district, as designated by the New York City Preservation Commission or the New York State Historic Preservation Office.



- D. **Landmark Quality Structure:** Any building which has been determined by the City to be of landmark quality and/or historical significance.
- E. **Preservation:** To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.
- F. **Rehabilitation:** To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- G. **Restoration:** To accurately depict the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and the reconstruction of missing features from the restoration period.
- H. **Reconstruction:** To reproduce in the exact form and detail a building, structure, or artifact as it appeared at a specific period in time.
- I. **Stabilize:** To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.
- J. **Protect and Maintain:** To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.
- K. **Repair:** To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.
- L. **Replace:** To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:
 - 1. **Duplication:** Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
 - 2. **Replacement with New Materials:** Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
 - 3. **Replacement with Substitute Materials:** Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.
- M. **Remove:** To detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- N. **Remove and Salvage:** To detach items from existing construction and deliver them to the City ready for reuse.
- O. **Remove and Reinstall:** To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.
- P. **Existing to Remain or Retain:** Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.



- Q. **Material in Kind:** Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

1.5 SUBMITTALS:

- A. **Historic Treatment Program:** Submit a written plan for each phase or process, including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work.
- B. **Alternative Methods and Materials:** If alternative methods and materials to those indicated are proposed for any phase of work, submit for Commissioner's approval a written description including evidence of successful use on other comparable projects, and program of testing to demonstrate effectiveness for use on this Project.
- C. **Qualification Data:** For historic treatment specialists as specified and required by individual sections of the project specifications.
- D. **Photographs for Designated Landmark Structures:** Submit photographs in accordance with Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION and as described in this section.
- E. **Record Documents:** Include modifications to manufacturer's written instructions and procedures, as documented in the historic treatment preconstruction conference and as the Work progresses.

1.6 QUALITY ASSURANCE:

- A. **Special Experience Requirements:** Special Experience Requirements may apply to the firm that will provide Historic Treatment Services. If applicable, such Special Experience Requirements are set forth in the Bid Booklet.
- B. **Historic Treatment Preconstruction Conference:** The Resident Engineer will schedule and hold a preconstruction meeting at the site in accordance with Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION.
1. **Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation.**
- a. **Record procedures established as a result of the review and distribute to affected parties.**

1.7 STORAGE AND PROTECTION OF HISTORIC MATERIALS:

- A. **Removed and Salvaged Historic Materials:** As specified and required by individual sections of the project specifications.
- B. **Removed and Reinstalled Historic Materials:** As specified and required by individual sections of the project specifications.
- C. **Existing Historic Materials to Remain:** Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Commissioner, items may be removed to a suitable, protected storage location during historic treatment and reinstalled in their original locations after historic treatment operations are complete.
- D. **Storage and Protection:** When removed from their existing location, store historic materials, at a location acceptable to the Commissioner, within a weather tight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.
1. **Identify removed items with an inconspicuous mark indicating their original location.**



PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 PROTECTION, GENERAL:

- A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Temporary Protection of Historic Materials during Construction:
 - 1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
 - 2. Attachments of temporary protection to existing construction shall be approved by the Commissioner prior to installation.
- D. Protect landscape work adjacent to or within work areas as follows:
 - 1. Provide barriers to protect tree trunks.
 - 2. Bind spreading shrubs.
 - 3. Use coverings that allow plants to breathe and remove coverings at the end of each day. Do not cover plant material with a waterproof membrane for more than 8 hours at a time.
 - 4. Set scaffolding and ladder legs away from plants.
- E. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify Commissioner immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.
 - 1. Provide a method to prevent solids, including stone or mortar residue, from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.
 - 2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT:

- A. No roofing work requiring the use of an open flame shall be permitted on any Landmark Structure or any Landmark Quality Structure, whose roof or wall structure is made of wood or primarily of wood.
- B. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:
 - 1. Obtain Commissioner's approval for operations involving use of open-flame or welding equipment. Notification shall be given for each occurrence and location of work with heat-generating equipment.
 - 2. As far as practical, use heat-generating equipment in shop areas or outside the building.
 - 3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.



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4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.
 6. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
 7. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.
 8. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 9. Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.
- C. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

3.3 PHOTOGRAPHIC DOCUMENTATION:

- 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, shall submit to the Commissioner, in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS, all documentation concerning the successful execution of all historic treatments. This shall include, but not be limited to, copies of all before and after photographs of historic treatments, one copy of the Contractor's as-built drawings, copies of testing and analysis results, including cleaning, mortar analysis, pointing mortars and all other information pertaining to work performed under the New York City Landmarks Preservation Commission jurisdiction.

END OF SECTION 01 35 91



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**SECTION 01 40 00
QUALITY REQUIREMENTS**

PART 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 Document requirements.
- D. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
- E. Provisions of this Section do not limit requirements for the Contractor to provide quality-assurance and -control services required by the Commissioner or authorities having jurisdiction.
- F. Specific test and inspection requirements are specified in the individual sections of the Specifications.
- G. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13.03, "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 shall 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 shall cooperate with the commissioning agent and provide whatever assistance is required.



1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Commissioning: A Total Quality Assurance process that includes checking the design and installation of equipment, as well as performing functional testing of the same to confirm that the installed equipment is operating and in conformance with the Contract Documents and the City's requirements.

1.5 CONFLICTING REQUIREMENTS:

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, the Contractor shall comply with the most stringent requirement as determined by the Commissioner. The Contractor shall refer any uncertainties and/or conflicting requirements to the Commissioner for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. The Contractor shall refer any uncertainties to the Commissioner for a decision before proceeding.

1.6 QUALITY ASSURANCE:

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required. Individual Specification Sections specify additional requirements.
- B. Installer Qualifications: Special Experience Requirements may apply to the firm that will install, erect or assemble specified work required for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet.
- 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 shall provide quality-control services as set forth in the Specifications and those required by Authorities having jurisdiction. The Contractor shall provide quality-control services required by Authorities having jurisdiction, whether specified or not.
 - 1. COST OF TESTS BORNE BY CONTRACTOR – In the case of tests which are specifically called for in the Specifications to be provided by the Contractor or tests which are required by any Authority having jurisdiction, but are not indicated as the responsibility of the City, the cost thereof shall be borne by the Contractor and shall be deemed to be included in the Contract price. The Contractor shall reimburse the City for expenditures incurred in providing tests on materials and equipment submitted by the Contractor as the equivalent of that specifically named in the Specifications and rejected for non-compliance.
 - 2. Where services are indicated as Contractor's responsibility, the Contractor shall engage a qualified testing agency to perform these quality-control services. Any testing agency engaged by the Contractor to perform quality control services is subject to prior approval by the Commissioner.



3. The Contractor shall not employ same entity engaged by the City, unless agreed to in writing by the Commissioner.
 4. The Contractor shall notify testing agencies and the Resident Engineer at least 72 hours in advance of the date and time for the performance of Work that requires testing or inspecting.
 5. Where quality-control services are indicated as Contractor's responsibility, the Contractor shall submit a certified written report, in triplicate to the Commissioner, of each quality-control service.
 6. Testing and inspecting requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
 7. The Contractor shall submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, the Contractor shall engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results shall be submitted in writing as specified in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. **Retesting/Re-inspecting:** Regardless of whether the original tests or inspections were the Contractor's responsibility, the Contractor shall provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Associated Services:** The Contractor shall cooperate with entities performing required tests, inspections, and similar quality-control services, and shall provide reasonable auxiliary services as requested. The Contractor shall notify the testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing entity in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing entities.
 6. Design mix proposed for use for material mixes that require control by the testing entity.
 7. Security and protection for samples and for testing and inspecting equipment at the Project site.
- F. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
 2. Coordinate and cooperate with the Commissioning Authority/Agent as applicable for start-up, inspection and functional testing in the implementation of the Commissioning Plan.
- G. **Manufacturer's Directions:** Where the Specifications provide that the manufacturer's directions are to be used, such printed directions shall be submitted to the Commissioner.
- H. **Inspection of Material:** In the event that the Specifications require the Contractor to engage the services of an entity to witness and inspect any material especially manufactured or prepared for use in or part of the permanent construction, such entity shall be subject to prior written approval by the Commissioner.
1. **NOTICE** - The Contractor shall give notice in writing to the Commissioner sufficiently in advance of its intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Commissioner will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials, or the Commissioner will notify the Contractor that the inspection will be made at a point



other than the point of manufacture, or the Commissioner will notify the Contractor that inspection will be waived.

- I. **No Shipping Before Inspection:** The Contractor shall comply with the foregoing before shipping any material.
- J. **Certificate of Manufacture:** When the Commissioner so requires, the Contractor shall furnish to the Commissioner authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Specifications. These certificates shall include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products being fabricated by the manufacturer. This may include such approvals as B.S.A., M.E.A., B.E.C. Advisory Board, etc.
- K. **Acceptance:** When materials or manufactured products shall comprise such quantity that it is not practical to make physical tests or chemical analyses directly on the product furnished, a certificate stating the results of such tests or analyses of similar materials which were concurrently produced may, at the discretion of the Commissioner, be considered as the basis for the acceptance of such material or manufactured product.
- L. **Testing Compliance:** The testing personnel shall make the necessary inspections and tests, and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Specifications, indicating thereon all analyses and/or test data and interpreted results thereof.
- M. **Reports:** Six (6) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Commissioner as a prerequisite for the acceptance of any material or equipment.
- N. **Rejections:** If, in making any test, it is ascertained by the Commissioner that the material or equipment does not comply with the Specifications, the Contractor will be notified thereof, and will be directed to refrain from delivering said materials or equipment, or to promptly remove it from the site or from the work and replace it with acceptable material at no additional cost to the City.
- O. **Furnish Designated Materials:** Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Specifications, the Contractor shall immediately proceed to furnish the designated material or equipment.

1.8 APPROVAL OF MATERIALS:

- A. **Local Laws:** All materials, appliances and types or methods of construction shall be in accordance with the Specifications and shall in no event be less than that necessary to conform to the requirements of the New York City Construction Codes, Administrative Code and Charter of the City of New York.
- B. **Approval of Manufacturer:** The names of proposed manufacturers, material suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Commissioner for approval, as early as possible, to afford proper review and analysis. No manufacturer will be approved for any materials to be furnished under the Contract unless it shall have a plant of ample capacity and shall have successfully produced similar products. All approvals of materials or equipment that are legally required by the New York City Construction Codes and other governing Authorities must be obtained prior to installation.
- C. **All Materials:** Fixtures, fittings, supplies and equipment furnished under the Contract shall be new and unused, except as approved by the Commissioner, and of standard first-grade quality and of the best workmanship and design. The City of New York encourages the use of recycled products where practical.
- D. **INFORMATION TO SUPPLIERS -** In asking for prices on materials under any item of the Contract, the Contractor shall provide the manufacturer or dealer with such complete information from the



Specifications and Contract Drawings as may in any case be necessary, and in every case the Contractor shall inform the manufacturer or dealer of all the General Conditions and requirements herein contained.

1.9 SPECIAL INSPECTIONS:

A. SPECIAL INSPECTIONS:

1. Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, shall be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project specifications, except as noted below for Form TR-3: Technical Report for Concrete Design Mix. The Special Inspector shall be an entity compliant with the requirements of the New York City Construction Codes. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring special inspection.
2. Form TR3: Technical Report Concrete Design Mix: The contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR3: Technical Report Concrete Design Mix, including, but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.
3. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring Special Inspection. The contractor shall be responsible for, and bear related costs to assure that all construction or work shall remain accessible and exposed for inspection purposes until the required inspection is completed.
4. Inspections and tests performed under "Special Inspection" shall not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".
5. The contractor must coordinate with the Resident Engineer or DDC Project Manager to provide access and schedule the work for inspection by the Special Inspector.

1.10 INSPECTIONS BY OTHER CITY AGENCIES:

- A. Letter of Completion: Just prior to substantial completion of this Project, the Commissioner will file with the Department of Buildings, an application for a Letter of Completion or a Certificate of Occupancy for the structure.
- B. Final Inspections: In connection with the above mentioned application for a Letter of Completion or a Certificate of Occupancy and before certificates of final payments are issued, the Contractor will be required to arrange for all final inspections by the inspection staff of the Department of Buildings, Fire Department or other Governmental Agencies having jurisdiction, and secure all reports, sign offs, certificates, etc., by such inspection staff or other governmental agencies, in order that a Letter of Completion or Certificate of Occupancy can be issued promptly.

1.11 CERTIFICATES OF APPROVAL:

- A. Responsibility: The Contractor shall be responsible for and shall obtain all final approvals for the work installed under the Contract in the form of such certificates that are required by all governmental agencies having jurisdiction over the work of the Contract.
- B. Transmittal: All such certificates shall be forwarded to the Commissioner through the Resident Engineer.



1.12 ACCEPTANCE TESTS:

- A. Government Agencies: All equipment and appliances furnished and installed under the Contract shall conform to the requirements of the Specifications, and shall in no event be less than that necessary to comply with the minimum requirements of the law and all of the governmental agencies having jurisdiction.
- B. Notice of Tests: Whenever the Specifications and/or any governmental agency having jurisdiction requires the acceptance test, the Contractor shall give written notice to all concerned of the time when these tests will be conducted.
- C. Energy: The City will furnish all energy, fuel, water and light required for tests.
- D. Labor and Materials: The Contractor shall furnish labor and all other material and instruments necessary to conduct the acceptance tests at no additional cost to the City.
- E. Certificates: The final acceptance by the Commissioner shall be contingent upon the Contractor delivering to the Commissioner all necessary certificates evidencing compliance in every respect with the requirements of the regulatory agencies having jurisdiction.
- F. Results: If the results of tests and Special Inspections indicate that the material or procedures do not meet requirements as set forth on the Contract Drawings or in the Specifications or are otherwise unsatisfactory, the Contractor shall only proceed as directed by the Resident Engineer. Additional costs resulting from retesting, re-inspecting, replacing of material and/or damage to the work and any delay caused to the schedule shall be borne by the Contractor.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, the Contractor shall repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

END OF SECTION 01 40 00



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**SECTION 01 42 00
REFERENCES**

PART 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 shall mean and intend approved, acceptable or satisfactory to the Commissioner.
- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- D. "DIRECTED," "REQUIRED," ETC.- Wherever reference is made in the Contract to the work or its performance, the terms "directed," "required," "permitted," "ordered," "designated," "prescribed," "determined," and words of similar import shall, unless expressed otherwise, imply the direction, requirements, permission, order, designation or prescription of the Commissioner.
- E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings.



1.3 CODES, AGENCIES AND REGULATIONS:

A.D.A.A.G.	Americans with Disabilities Act (ADA) – Architectural Barriers Act (ABA)
B.G. & E.	Bureau of Gas and Electricity of the City of New York
B.S. & A.	New York City Board of Standards and Appeals
DOE	Department of Energy
E.C.C.C.N.Y.S.	Energy Conservation Construction Code of New York State
EPA	Environmental Protection Administration
N.Y.C.C.C.	New York City Construction Codes – includes: New York City Plumbing Code New York City Building Code New York City Mechanical Code New York City Fuel Gas Code
N.Y.S.D.O.L	New York State Department of Labor
N.Y.C.D.E.P	New York City Department of Environmental Protection
N.Y.C.E.C.	New York City Electrical Code
N.Y.C.E.C.C	New York City Energy Conservation Code
N.Y.C.F.C	New York City Fire Code
N.Y.S...D.E.C.	New York State Department of Environmental Conservation
O.S.H.A.	Occupational Safety & Health Administration

1.4 INDUSTRY STANDARDS:

- A. **STANDARD REFERENCES** – Unless otherwise specifically indicated in the Contract Documents, whenever reference is made to the furnishing of materials or testing thereof that conforms to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification adopted and published by that technical society, organization or body, as of the date of the bid opening, Unless the provisions of the New York City Construction Codes adopts a different or earlier dated version of such standard.
- B. **APPLICABILITY OF STANDARDS:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect, to the extent referenced, as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.
- C. **CONFLICTING REQUIREMENTS:** Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantity or quality, comply with the most stringent requirements. Immediately refer uncertainties, and requirements that are different but apparently equal, to the Commissioner in writing for a decision before proceeding.
- D. **STANDARD SPECIFICATIONS** - When no reference is made to a code, standard or specification, the Standard Specifications of the ASTM or the AIEE, as the case may be, shall govern.
- E. **REFERENCES** - Reference to a technical society, organization or body may be made in the Specifications by abbreviations. Abbreviations and acronyms used in the Specifications and other Contract Documents mean the associated name. The following names are subject to change and are



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believed, but are not assured, to be accurate and up-to-date as of the Issue Date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AGMA	American Gear Manufacturer Association
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AIEE	American Institute of Electrical Engineers



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AISC	American Institute of Steel Construction
ASIS	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSc	American Lumber Standard Committee, Incorporated
ALI	Automotive Lift Institute
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE/SEI	American Society of Civil Engineers, Structural Engineering Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)



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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	Chartered Institute of Building Services Engineers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CGSB	Canadian General Standards Board
CIMA	Cellulose Insulation Manufacturers Association
CIPRA	Cast Iron Pipe Research Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute



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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
FEME	Federal Emergency Management Agency
FIBA	Federation Internationale de Basketball Amateur (The International Basketball Federation)



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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.



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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



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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)



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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



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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



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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.
WASTECC	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



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PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 42 00



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REFERENCES
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**SECTION 01 50 00
TEMPORARY FACILITIES, SERVICES AND CONTROLS**

PART 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. Resident Engineer's 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. Security Guards/Fire Guards on Site
 17. Project Sign and Rendering
 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.



- B. Permanent Enclosure: As determined by Commissioner, permanent or temporary roofing that is complete, insulated, and weather tight; exterior walls which are insulated and weather tight; and all openings that are closed with permanent construction or substantial temporary closures.
- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Reports: Submit reports of tests, inspections, meter readings and similar procedures for temporary use.

1.6 PROJECT CONDITIONS:

- A. Temporary Use of Permanent Facilities and Services: The Contractor shall be responsible for the operation, maintenance, and protection of each permanent facility and service during its use as a construction facility before Final Acceptance by the City, regardless of previously assigned responsibilities.
- B. Install, operate, maintain and protect temporary facilities, services and controls.
 - 1. Keep temporary services and facilities clean and neat in appearance.
 - 2. Operate temporary services in a safe and efficient manner.
 - 3. Relocate temporary services and facilities as needed as Work progresses.
 - 4. Do not overload temporary services and facilities or permit them to interfere with progress.
 - 5. Provide necessary fire prevention measures.
 - 6. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on-site.

1.7 NON-REGULAR WORK HOURS (OVERTIME):

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if the Drawings and/or the Specifications indicate that the Work, or specific components thereof, must be performed during other than regular working hours. In such case, all costs for the provision of temporary services, facilities and controls during other than regular working hours shall be deemed included in the total Contract Price.
- B. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if a change order is issued directing the Contractor to perform the Work, or specific components thereof, during other than regular working hours. In such case, compensation for the provision of temporary services, facilities and controls during other than regular working hours shall be provided through the change order.

1.8 SERVICES BEYOND COMPLETION DATE:

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall provide such temporary services, facilities and controls even if completion of all required work at the



site occurs after the time fixed for such completion in Schedule A.

PART II – PRODUCTS

2.1 MATERIALS:

- A. Provide undamaged materials in serviceable condition and suitable for use intended.
- B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- C. Water: Potable and in compliance with requirements of the Department of Environmental Protection.

2.2 EQUIPMENT:

- A. Provide undamaged equipment in serviceable condition and suitable for use intended.
- B. Water Hoses: Heavy-duty abrasive-resistant flexible rubber hoses, 100 feet (30 m) long with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electric Power Cords: Grounded extension cords.
 - 1. Provide hard-service cords where exposed to abrasion or traffic.
 - 2. Provide waterproof connectors to connect separate lengths of electric cords where single lengths will not reach areas of construction activity.
 - 3. Do not exceed safe length-voltage ratio.
- D. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART III – EXECUTION:

3.1 INSTALLATION, GENERAL:

- A. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities as approved by the Resident Engineer.

3.2 TEMPORARY WATER SYSTEM:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 A

- A. TEMPORARY WATER SYSTEM - NEW FACILITIES: During construction, the Contractor shall furnish a Temporary Water System as set forth below.
 - 1. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Dept. of Environmental Protection for the schedule of charges for water use during construction. The Contractor will be responsible for payment of water charges.
 - 2. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Department of Environmental Protection's Bureau of Water Supply and obtain a permit to install the temporary water supply system. The system shall be installed and maintained for the use of the Contractor and its subcontractors. A copy of the above mentioned permit shall be filed with the Commissioner. The Contractor shall provide temporary water main, risers and waste stacks as directed and install on each floor, outlets with two (2) 3/4" hose valve connections over a



barrel installed on a steel pan. The Contractor shall provide drains from the pans to the stack and house sewer and hose bibs to drain the water supply risers and mains. During winter months, the Contractor shall take the necessary precautions to prevent the temporary water system from freezing. The Contractor shall provide repairs to the temporary water supply system for the duration of the project until said temporary system is dismantled and removed.

3. Disposition of Temporary Water System: The Contractor shall be responsible for dismantling the temporary water system when no longer required for the construction operations, or when replaced by the permanent water system installed for the project, or as otherwise directed by the Resident Engineer. All repair work resulting from the dismantling of the temporary water system shall be the responsibility of the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 B

B. TEMPORARY WATER SYSTEM – PROJECTS IN EXISTING FACILITIES:

1. When approved by the Commissioner, use of existing water system will be permitted for temporary water service during construction, as long as the system is cleaned and maintained in a condition acceptable to the Commissioner. At Substantial Completion, the Contractor shall restore the existing water system to conditions existing before initial use.
2. The Contractor shall be responsible for all repairs to the existing water system permitted to be used for temporary water service during construction. The Contractor shall be responsible to maintain the existing system in a clean condition on a daily basis, acceptable to the Commissioner.
3. The Contractor will be responsible for payment of water charges as directed by the Commissioner. Billing will be in accordance with the Department of Environmental Protection schedule of charges for Building Purposes.

C. WASH FACILITIES: The Contractor shall install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition.

1. Dispose of drainage properly.
2. Supply cleaning compounds appropriate for each condition.
3. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.

D. DRINKING WATER FACILITIES: The Contractor shall provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg. F (7 to 13 deg. C).

3.3 TEMPORARY SANITARY FACILITIES:

- A. The Contractor shall provide toilets, wash facilities and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility, and provide covered waste containers for used materials.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 B

B. SELF-CONTAINED TOILET UNITS:

1. The Contractor shall provide temporary single-occupant toilet units of the chemical, aerated recirculation, or combustion type for use by all construction personnel. Units shall be properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Quantity of toilet units shall comply with the latest OSHA regulations.
2. Toilets: Install separate self-contained toilet units for male and female personnel. Shield toilets to ensure privacy.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 C

C. EXISTING TOILETS:

1. **TOILET FACILITIES:** When approved by the Commissioner, the Contractor shall arrange for the use of existing toilet facilities by all personnel during the execution of the work. The Contractor shall be responsible to clean and maintain facilities in a condition acceptable to the Resident Engineer and, at completion of construction, to restore facilities to their condition at the time of initial use.
2. **MAINTENANCE** - The Contractor shall maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs.
3. **NUISANCES** - The Contractor shall not cause any sanitary nuisance to be committed by its employees or the employees of its subcontractors in or about the work and shall enforce all sanitary regulations of the City and State Health Authorities.

3.4 TEMPORARY ELECTRIC POWER, TEMPORARY LIGHTING SYSTEM, AND SITE SECURITY LIGHTING:

- A. **SCOPE:** This Section sets forth the General Conditions and procedures relating to Temporary Electric Power, Temporary Lighting System and Site Security Lighting during the construction period.
- B. **TEMPORARY ELECTRIC POWER:**
The Contractor shall provide and maintain a Temporary Electric Power service and distribution system of sufficient size, capacity and power characteristics required for construction operations for all required work by the Contractor and its subcontractors, including but not limited to power for the Temporary Lighting System, Site Security Lighting, construction equipment, hoists, temporary elevators and all field offices. Temporary Electric Power shall be provided as follows:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (1)

1. CONNECTION TO UTILITY LINES:

- a. **Temporary Electric Power Service** for use during construction shall be provided as follows: The Contractor shall make all necessary arrangements with the Public Utility Company and pay all charges for the Temporary Electric Power system. The Contractor shall include in its total Contract Price any charges for Temporary Electric Power, including charges that may be made by the Public Utility Company for extending its electrical facilities, and for making final connections. The Contractor shall make payment directly to the Public Utility Company.
- b. **APPLICATIONS FOR METER:** The Contractor shall make application to the Public Utility Company and sign all documents necessary for, and pay all charges incidental to, the installation of a watt hour meter or meters for Temporary Electric Power. The Contractor shall pay to the Public Utility Company, all bills for Temporary Electric energy used throughout the work, as they become due.
- c. **SERVICE AND METERING EQUIPMENT** - The Contractor shall furnish and install, at a suitable location on the site, approved service and metering equipment for the Temporary Electric Power System, ready for the installation of the Public Utility Company's metering devices. The temporary service mains to and from the metering location shall be not less than 100 Amperes, 3-phase, 4-wire and shall be of sufficient capacity to take care of all demands for all construction operations and shall meet all requirements of the NYCEC.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (2)

2. CONNECTION TO EXISTING ELECTRICAL POWER SERVICE:
- When approved by the Commissioner, electrical power service for the Temporary Lighting System and for the operation of small tools and equipment less than ¼ horsepower may be taken from the existing electric distribution system if the existing system is of adequate capacity for the temporary power load. The Contractor shall cooperate and coordinate with the facility custodian, so as not to interfere with the normal operation of the facility.
 - There will be no charge to the Contractor for the electrical energy consumed.
 - The Contractor shall provide, maintain and pay all costs for separate temporary electric power for any temporary power for equipment larger than 1/4 horsepower. When directed by the Commissioner, the Contractor shall remove its own temporary power system.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (3)

3. ELECTRICAL GENERATOR POWER SERVICE:
- When connection to Utility Lines or existing facility electric service is not available or is not adequate to supply the electric power need for construction operations, the Contractor shall provide self-contained generators to provide power beyond that available.
 - Pay for all energy consumed in the progress of the Work, exclusive of that available from the existing facility or Utility Company.
 - Provide for control of noise from the generators.
 - Comply with the Ultra Low Sulfur Fuel in Non-Road Vehicles requirements as set forth in Article 5.4 of the Contract.
- C. USE OF COMPLETED PORTIONS OF THE ELECTRICAL WORK:
- USE OF MAIN DISTRIBUTION PANEL:** As soon as the permanent electric service feeders and equipment, metering equipment and main distribution panel are installed and ready for operation, the Contractor shall have the temporary lighting and power system changed over from the temporary service points to the main distribution panel.
 - COST OF CHANGE OVER -** The Contractor shall be responsible for all costs due to this change over of service and it shall also make application to the Public Utility Company for a watt hour meter to be set on the permanent meter equipment.
 - The requirements for temporary electric power service specified herein shall be adhered to after change over of service until final acceptance of the project.
 - NO EXTRA COST -** The operation of the service and switchboard equipment shall be under the supervision of the Contractor, but this shall in no way be interpreted to mean the acceptance of such part of the installation or relieve the Contractor from its responsibility for the complete work or any part thereof. There shall be no additional charge for supervision by the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 D

- D. TEMPORARY LIGHTING SYSTEM:
- The Contractor shall provide adequate service for the temporary lighting system, or a minimum of 100 Amperes, 3-phase, 4-wire service for the temporary lighting system, whichever is greater, and make all necessary arrangements with the Public Utility Company and pay all charges by them for the Temporary Lighting System



2. The Contractor shall furnish and connect to the metered service point, a Temporary Lighting System to illuminate the entire area where work is being performed and points adjacent to the work, with separately fused circuits for stairways and bridges. Control switches for stairway circuits shall be located near entrance on ground floor.
3. ITEMS: The Temporary Lighting System provided by the Contractor shall consist of wiring, fixtures, left-hand double sockets, (one (1) double socket for every 400 square feet, with one (1) lamp and one (1) three-prong outlet) lamps, fuses, locked type guards, pigtails and any other incidental material. Additional details may be outlined in the detailed Specifications for the Electrical Work. Changes may be made, provided the full equivalent of those requirements is maintained.
4. The Temporary Lighting System shall be progressively installed as required for the advancement of the work under the Contract.
5. RELOCATION: The cost for the relocation or extension of the original Temporary Lighting System, required by the Contractor or its subcontractors, that is not required due to the normal advancement of the work, as determined by the Resident Engineer, shall be borne by the Contractor.
6. PIGTAILS: shall be furnished with left-hand sockets with locked type guards and 40 feet of rubber covered cable. The Contractor shall furnish and distribute a minimum of three (3) complete pigtails to each subcontractor. See the detailed Electrical Specifications for possible additional pigtails required.
7. LAMPS: The Contractor shall furnish and install one (1) complete set of lamps, including those for the trailers. Broken and burned out lamps in the temporary lighting system, DDC field office and construction trailers, shall be replaced by the Contractor. All lamps shall be compact fluorescent.
8. CIRCUIT PROTECTION: The Contractor shall furnish and install GFI protection for the Temporary Lighting and Site Security Lighting Systems.
9. MAINTENANCE OF TEMPORARY LIGHTING SYSTEM:
 - a. The Contractor shall maintain the Temporary Lighting System in good working order during the scheduled hours established.
 - b. The Contractor shall include in its total Contract Price all costs in connection with the Temporary Lighting System, including all costs for installation, maintenance and electric power.
10. REMOVAL OF TEMPORARY LIGHTING SYSTEM: The temporary lighting system shall be removed by the Contractor when authorized by the Commissioner.
11. HAND TOOLS: The temporary lighting system shall not be used for power purposes, except that light hand tools not larger than 1/4 horsepower may be operated from such system by the Contractor and its subcontractors.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 E

- E. SITE SECURITY LIGHTING (FOR NEW CONSTRUCTION ONLY):
1. The Contractor shall furnish, install and maintain a system of site security lighting, as herein specified, to illuminate the construction site of the project, and it shall be connected to and energized from the Temporary Lighting System. All costs in connection with site security lighting shall be deemed included in the total Contract Price.
 2. It is essential that the site security lighting system be completely installed and operating, at the earliest possible date. The Contractor shall direct its subcontractors to cooperate, coordinate and exert every effort to accomplish an early complete installation of the site security lighting system. After the system is installed and in operation, if a part of the system interferes with the work of any trade, the Contractor shall be completely responsible for the expense of removing, relocating and replacing all equipment necessary to reinstate the system to proper operating conditions.
 3. The system shall consist of flood lighting by pole mounted guarded sealed-beam units. Floodlight units shall be mounted 16 feet above grade. Floodlights shall be spaced around the perimeter of the site to produce an illumination level of no less than one (1) foot candle around the perimeter of



the site, as well as in any potentially hazardous area or any other area within the site that might be deemed by the Resident Engineer to require security illumination. The system shall be installed in a manner acceptable to the Resident Engineer. The first lighting unit in each circuit shall be provided with a photoelectric cell for automatic control. The photoelectric cell shall be installed as per manufacturer's recommendations.

4. All necessary poles shall be furnished and installed by the Contractor.
5. The site security lighting shall be kept illuminated at all times during the hours of darkness. The Contractor shall, at its own expense, shall keep the system in operation, and shall furnish and install all material necessary to replace all damaged or burned out parts.
6. The Contractor shall be on telephone call alert for maintaining the system during the operating period stated above.
7. All materials and equipment furnished under this section shall remain the property of the Contractor and shall be removed and disposed of by the Contractor when authorized in writing by the Resident Engineer.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5

3.5 TEMPORARY HEAT:

A. GENERAL:

1. Definition: The provision of Temporary Heat shall mean the provision of heat in order to permit construction to be performed in accordance with the Progress Schedule during all seasons of the year and to protect the work from the harmful effects of low temperature. In the event the building, or any portion thereof, is occupied during construction, the provision of Temporary Heat shall include the provision of heat to permit normal operations in such occupied areas.
 - a. The provision of Temporary Heat shall be in accordance with the temperature requirements set forth in Sub-Section 3.5 C herein.
 - b. The provision of Temporary Heat shall include the provision of: 1) all fuel necessary and required, 2) all equipment necessary and required, and 3) all operating labor necessary and required. Operating labor shall mean that minimum force required for the safe day to day operation of the system for the provision of Temporary Heat and shall include, without limitation, heating maintenance labor and/or Fire Watch as required by NYC Fire Department regulations. Operating labor may be required seven (7) days per week and during other than normal working hours, for the period of time required by seasonal weather conditions.
 - c. In the event the building, or any portion thereof, is occupied and the Project involves the replacement, modification and/or shut down of the permanent heating system, or any key component thereof; and such system is a combined system which furnishes domestic hot water for the building occupants, the provision of Temporary Heat shall include the provision of domestic hot water at the same temperature as the system which is being replaced. Domestic hot water shall be provided in accordance with the phasing requirements set forth in the Contract Documents.
2. Responsibility: The Contractor's responsibility for the provision of Temporary Heat, including all expenses in connection therewith, shall be as set forth below:
 - a. Projects Involving Enclosure of the Building:
 - 1) Prior to Enclosure - Until the Commissioner determines that the building has been enclosed, as set forth in Sub-Section 3.5 B; the Contractor shall be responsible for the provision of Temporary Heat.
 - 2) Post Enclosure - Once the Commissioner determines that the building, or any portion thereof, has been enclosed, as set forth in Sub-Section 3.5 B, the Contractor shall be responsible for the provision of Temporary Heat by one or more of the following means: 1) by an existing heating system (if any), 2) by a permanent heating system which is being installed as part of the Project, or 3) by a temporary heating system(s).



- 3) The Contractor shall, within two (2) weeks of the kick-off meeting, submit to DDC for review its proposed plan to provide Temporary Heat. Such plan is subject to approval by the Resident Engineer. The Contractor shall provide Temporary Heat in accordance with the approved plan until written acceptance by the Commissioner of the work of all Contractors, including punch list work, unless directed otherwise in writing by the Commissioner. The responsibility of the Contractor provided for herein is subject to the exception set forth in Sub-Section 3.5 A.2 (b) herein.
 - b. Projects not involving Enclosure of the Building:
 - 1) If the Project involves the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, the Contractor shall be responsible for the provision of Temporary Heat, except as otherwise provided in Sub-Section 3.5 H.3(b).2 herein.
 - 2) If the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof; there is no Contractor responsibility of the provision of Temporary Heat, unless otherwise specified in the Contract Documents. However, if the Commissioner, pursuant to Sub-Section 3.5 H.3 (b).1 herein, determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat and shall be paid for the same in accordance with Sub-Section 3.5 H.3 (b).1 herein.
- B. ENCLOSURE OF STRUCTURES:**
1. Notification: The Contractor shall notify all its subcontractors and the Resident Engineer at least 30 days prior to the anticipated date that the building(s) will be enclosed.
 2. Commissioner Determination: The Commissioner shall determine whether the building, or any portion thereof, has been enclosed. As indicated in Sub-Section 3.5 A.2 above, once the building has been enclosed, the Contractor shall be responsible for the provision of Temporary Heat. The Commissioner's determination with respect to building enclosure shall be based upon all relevant facts and circumstances, including without limitation, 1) whether the building meets the criteria set forth in Paragraph 3 below, and 2) whether the openings in the building, such as doorways and windows, have been sufficiently covered so as to provide reasonable heat retention and protection from the elements.
 3. Criteria for enclosure:
 - a. Roof Area:
 - 1) A building shall be considered to be roofed when the area to be roofed is covered by a permanent structure and all openings through the permanent structure are covered and protected by temporary covers as described in Paragraph (c) below.
 - 2) Intermediate floor structures of multi-floor buildings shall be considered to be roofed subject to the same requirements of the building roof.
 - 3) The final roofing system need not be in place for the building or structure to be determined to be enclosed; provided, however, all openings through the permanent structure covering the roof must be covered and protected by temporary covers, as described in Paragraph (c) below.
 - b. Walls: For the walls to be determined to be enclosed permanent exterior wall elements or facing material must be in place and all openings must be covered and protected by temporary covers, as described in Paragraph (c) below.
 - c. Temporary Covers: In order to be acceptable, temporary covers must be securely fixed to prevent the entrance of rain, snow and direct wind. The minimum material requirements for temporary covers are as follows: 1) minimum 10 mil. Plastic 2) minimum 12 ounce waterproof canvas tarpaulins, or 3) a minimum three-eighths (3/8) inch thickness exterior grade plywood.



- d. Temporary covers for openings shall be the responsibility of the Contractor and such work shall be deemed included in the Contract price.

C. TEMPERATURE REQUIREMENTS:

- 1. Unoccupied Buildings: The temperature requirement for the provision of Temporary Heat in unoccupied buildings shall be the GREATER of the following: 1) 50 degrees Fahrenheit, or 2) the temperature requirement for the particular type of work set forth in the Contract Documents.
- 2. Occupied Buildings: The temperature requirement for the provision of Temporary Heat in occupied buildings, or portions thereof, shall be the GREATER of the following: 68 degrees Fahrenheit or the temperature requirement for the particular type of work set forth in the Contract Documents.

D. DURATION:

- 1. The Contractor shall be required to provide Temporary Heat until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall be responsible for the provision of Temporary Heat for the time specified herein, regardless of any delays in completion of the Project, including delays that result in the commencement of the provision of Temporary Heat during a season that is later than that which may have been originally anticipated. The Contractor shall include in its Total Contract Price all expenses in connection with the provision of Temporary Heat in accordance with the requirements specified herein.
- 2. The total Contract duration is set forth in consecutive calendar days in Schedule A of the Addendum. The Table set forth below indicates the number of full heating seasons that are deemed included in various contract durations, which are specified in consecutive calendar days (ccd)s. At a minimum, a full heating season shall extend from October 15th to April 15th.

Contract Duration	Full Heating Seasons Required
up to 360 ccds	1 full heating season
360 to 720 ccds	2 full heating seasons
more than 720 ccds	3 full heating seasons

E. METHOD OF TEMPORARY HEAT:

- 1. The method of temporary heat shall be in conformance with the New York City Fire Code and with all applicable laws, rules and regulations. Prior to implementation, such method shall be subject to the written approval of the Commissioner.
- 2. The method of temporary heat shall:
 - a. Not cause the deposition of dirt or smudges upon any finished work or cause any defacement or discoloration to the finished work.
 - b. Not be injurious or harmful to people or materials.
 - c. Portable fueled heating devices or equipment **SHALL NOT BE ALLOWED** for use as temporary heat other than construction-related curing or drying in conformance with the NYC Fire Code.
- 3. No open fires will be permitted.

F. TEMPORARY HEATING SYSTEM:

- 1. The temporary system for the provision of Temporary Heat provided by the Contractor following enclosure of the building shall be complete including, subject to provisions of paragraph E above, boilers pumps, radiators, space heaters, water and heating piping, insulation and controls. The temporary system for the provision of Temporary Heat shall be capable of maintaining the minimum temperature requirements set forth in Paragraph C above.



G. COORDINATION:

1. The Contractor, in the provision of Temporary Heat, shall coordinate its operations in order to insure sufficient and timely performance of all required work, including work performed by trade subcontractors. The Contractor shall supply and pay for all water required and used in the building for the operation of the heating system(s) for the purpose of Temporary Heat. The Contractor shall include all expenses in connection with the supply of water for Temporary Heat in its Total Contract Price. During the period in which Temporary Heat in an enclosed building is being furnished and maintained, the Contractor shall provide proper ventilating and drying, open and close the windows and other openings when necessary for the proper execution of the work and also when directed by DDC. The Contractor shall maintain all permanent or temporary enclosures at its own expense.

H. USE OF PERMANENT HEATING SYSTEMS:

1. Use of Permanent Heating System for Temporary Heat after Building Enclosure
 - a. The Contractor shall provide all labor and materials to promptly furnish and set all required equipment and convectors and/or radiators, piping, valves, fitting, etc., in ample time for their use for the provision of Temporary Heat after enclosure of the building.
 - b. New portions of the permanent heating system that are used for furnishing Temporary Heat shall be left in near perfect condition when delivered to the City for operation. Any repairs required, other than for ordinary wear and tear on the equipment, shall be made by the Contractor at his/her expense. The starting date for the warranty or guarantee period for such equipment shall be the date of Substantial Completion acceptance.
 - c. In the event that the Contractor does not advance the installation of the permanent heating system in sufficient time to permit its use for Temporary Heat as determined by DDC, the Contractor shall furnish and install a separate system for the provision of Temporary Heat as required to maintain the minimum temperature requirements set forth in Paragraph C above.
2. All equipment for the system for the provision of Temporary Heat shall be placed so as to comply with the requirements specified hereinbefore, and shall be connected, disconnected and suitably supported and located so as to permit construction work, including finish work such as wall plastering and painting, to proceed. The installation of the system for the provision of Temporary Heat by the Contractor, including the placing of ancillary system equipment, shall be coordinated with the operations of all trade subcontractors so as to insure sufficient and timely performance of the work. Once the permanent heating system is operating properly, the Contractor shall remove all portions of the system for Temporary Heat not part of the permanent heating system.
3. Temporary Heat Allowance for Special Conditions or and/or Unforeseen Circumstances.
 - a. The City may establish an allowance in the Contract for payment of costs and expenses in connection with the provision of Temporary Heat as set forth herein. If established, the City will include an amount for such allowance on the Bid Form, and the Contractor shall include such allowance amount in its Total Contract Price. The Contractor shall only be entitled to payment from this allowance under the conditions and in accordance with the requirements set forth below. In the event this allowance or any portion thereof remains unexpended at the conclusion of the Contract, such allowance shall remain the sole property of the City. Should the amount of the allowance be insufficient to provide payment for the expenses specified below, the City will increase the amount of the allowance.
 - b. The allowance set forth herein may be utilized only under the conditions set forth below.
 1. In the event the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, and the Commissioner determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat, as directed by the Commissioner. The City shall pay such Contractor for all costs for labor, material, and equipment necessary and required



for the same. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.

2. In the event the Commissioner determines that there is a need for maintenance of the permanent heating system by the Contractor after written acceptance by the Commissioner of the work, and that the need for such maintenance is not the fault of the Contractor, the Contractor shall provide the required maintenance of the permanent heating system for the period of time directed by the Commissioner. The City shall pay the Contractor for the cost of direct labor and fuel necessary and required in connection with such maintenance, excluding the cost of any foremen or other supervision. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.
- c. Payment for Fuel Costs - Payment from the allowance set forth herein for the cost of fuel necessary and required to operate the system for the provision of Temporary Heat or to maintain the permanent heating system under the conditions set forth in Paragraph b above shall be limited to the direct cost of such fuel. The Contractor shall not be entitled to any overhead and/or profit for such fuel costs. In order to receive payment for such fuel costs, the Contractor must present original invoices for the same. DDC reserves the right to furnish the required fuel.

I. RELATED ELECTRICAL WORK:

1. The Contractor shall be responsible for providing the items set forth below and shall include all expenses in connection with such items in its Total Contract Price. The Contractor shall provide such items promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
 - a. The Contractor shall provide all labor, materials, equipment and power necessary and required to furnish and maintain any temporary or permanent electrical connections to all equipment specified to be connected as part of the work of the Contractor's Contract.
 - b. The Contractor shall supply and pay for all power necessary and required for the operation of the system for the provision of Temporary Heat and/or the permanent heating system used for Temporary Heat. Such power shall be provided by the Contractor for the duration the Contractor is required to provide Temporary Heat, as set forth in Sub-section 3.5 D herein.
2. In providing the items set forth in Paragraph 1 above, the Contractor is advised that labor may be required seven (7) days a week and/or during other than normal working hours for the period of time required by seasonal weather conditions.

J. RELATED PLUMBING WORK:

1. The Contractor shall be responsible for providing all labor, materials and equipment necessary and required to furnish and maintain all temporary or permanent connections to all equipment or plumbing outlets specified to be provided as part of the work of this Contract. The Contractor shall include all expenses in connection with such items of work in its Total Contract Price. The Contractor shall provide such items of work promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
2. In the event portions of the permanent plumbing equipment furnished by the Contractor as part of the work of this Contract are used for the provision of Temporary Heat either during construction or prior to acceptance by the City of the complete plumbing system, the Contractor shall be responsible to provide such plumbing equipment to the City in near perfect condition and shall make any repairs required, other than for ordinary wear and tear on the equipment, at Contractor's expense. The starting date for warranty and/or guarantee period for such plumbing equipment shall be the date of Substantial Completion acceptance by the City.
3. For Projects requiring the installation of new and/or modified gas service, as well as associated meter installations, the Contractor shall promptly perform all required filings and coordination with



the Utility Companies in order to expedite the installation, testing, and approval of the gas service and associated meter(s).

3.6 STORM WATER CONTROL, DEWATERING FACILITIES AND DRAINS:

A. PUMPING:

1. Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rainfall.
2. Contractor shall furnish and install all necessary automatically operated pumps of adequate capacity with all required piping to run-off agencies, so as to maintain the excavation, cellar floor, pits and exterior depressions and excavations free from accumulated water during the entire period of construction and up to the date of final acceptance of work of the Contract.
3. All pumps shall be maintained at all times in proper working order.
4. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
5. Remove snow and ice as required to minimize accumulations.

3.7 TEMPORARY FIELD OFFICE FOR CONTRACTOR:

- A. The Contractor shall establish a temporary field office for its own use at the site during the period of construction, at which readily accessible copies of all Contract Documents shall be kept.
- B. The field office shall be located where it will not interfere with the progress of any part of the work or with visibility of traffic control devices.
- C. **CONTRACTOR'S REPRESENTATIVE:** In charge of the office there shall be a responsible and competent representative of the Contractor, duly authorized to receive orders and directions and to put them into effect.
- D. Arrangements shall be made by the Contractor whereby its representative may be readily accessible by telephone.
- E. All temporary structures shall be of substantial construction and neat appearance, and shall be painted a uniform gray unless otherwise directed by the Commissioner.
- F. **CONTRACTOR'S SIGN -** The Contractor shall post and keep posted, on the outside of its field office, office or exterior fence or wall at site of work, a legible sign giving full name of the company, address of the company and telephone number(s) of responsible representative(s) of the firm who can be reached in event of an emergency at any time.
- G. **ADVERTISING PRIVILEGES -** The City reserves the right to all advertising privileges. The Contractor shall not cause any signs of any kind to be displayed at the site unless specifically required herein or authorized by the Commissioner.

3.8 DDC FIELD OFFICE:

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 A

A. OFFICE SPACE IN EXISTING BUILDING:

1. The Resident Engineer will arrange for office space for sole use in the building where work is in progress. The Contractor shall provide and install a lockset for the door to secure the equipment in the room. The Contractor shall provide two (2) keys to the Resident Engineer. After completion of the project the Contractor shall replace the original lockset on the door and ensure its proper operation.
2. In addition to equipment specified in Sub-Section 3.8 D, the Contractor shall provide, for exclusive use of the DDC Field Office, the following:



**Department of
Design and
Construction**

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- 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 shall be minimum No. 12 AWG fed from individual circuits in the fuse box.
 - c. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
 - d. Two (2) metal wastebaskets.
 - e. One (1) fire extinguisher, one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
 - f. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the project as required.
3. The Contractor shall provide one (1) telephone, where directed and shall pay all costs for telephone service for calls within the New York City limits for the duration of the project.
 4. All furniture and equipment, except computer equipment specified in Sub-Section 3.8 D.3, shall remain the property of the Contractor.
 5. Computer Workstation quantities shall be provided as specified in Sub-Section 3.8 B 3-a for DDC Managed Projects, or Sub-Section 3.8 B 3-b for CM Managed Projects.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 B

B. DDC FIELD OFFICE TRAILER:

1. **GENERAL:** The Contractor shall, for the time frame specified herein, provide and maintain at its own cost and expense a DDC Construction Field Office and all related items as specified herein [hereinafter collectively referred to as the "DDC Field Office"] for the exclusive use of the Resident Engineer. The DDC Field Office shall be located at the Project site and shall be solely dedicated to the Project. Provision of the DDC Field Office shall commence within THIRTY (30) days from Notice to proceed and shall continue through forty-five (45) days after Substantial Completion of the required construction at the Project site. The Contractor shall remove the DDC Field Office forty-five (45) days after Substantial Completion of the required construction, or as otherwise directed in writing by the Commissioner.
2. **TRAILER:** The Contractor shall provide at its own cost and expense a mobile office trailer for use as the DDC Field Office. The Contractor shall install and connect all utility services to the trailer within thirty (30) days from Notice to Proceed. The trailer shall have equipment in compliance with the minimum requirements hereinafter specified. Any permits and fees required for the installation and use of said trailer shall be borne by the Contractor. The trailer including furniture and equipment therein, except computer equipment specified in Sub-Section 3.8D.3 herein, shall remain the property of the Contractor.
3. Trailer shall be an office type trailer of the size specified herein, with exterior stairs at entrance. Trailer construction shall be minimum 2 x 4 wall construction fully insulated with paneled interior walls, pre-finished gypsum board ceilings and vinyl tile floors.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8.B.3a or
SUB-SECTION 3.8.B.3b.**

- a. DDC Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
 - 1) Overall length: 32 Feet
Overall width: 10 Feet



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- 2) Interior Layout:
Provide one (1) general office/conference room area and one (1) private office at one end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
 - 3) Computer Workstation: Provide one (1) complete computer workstation, as specified in Sub-Section 3.8.D herein, in the private office area as directed by the Resident Engineer.
- b. CM Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
- 1) Overall length: 50 Feet
Overall width: 10 Feet
 - 2) Interior Layout:
Provide one (1) large general office/conference room in the center of the trailer and two (2) private offices, one (1) each at either end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
 - 3) Computer Workstation:
Provide three (3) complete computer workstations as specified in Sub-Section 3.8.D herein. Provide one (1) each complete computer workstation in each private office and one (1) complete computer workstation at the secretarial position as directed by the Resident Engineer.
4. The exterior of the trailer shall be lettered with black block lettering of the following heights with white borders:
- | | |
|---------------------------------------|--------|
| CITY OF NEW YORK | 2-1/2" |
| DEPARTMENT OF DESIGN AND CONSTRUCTION | 3-3/4" |
| DIVISION OF PUBLIC BUILDINGS | 3-1/2" |
| DDC FIELD OFFICE | 2-1/2" |
- NOTE: In lieu of painting letters on trailer the Contractor may substitute a sign constructed of a good quality weatherproof material with the same type and size of lettering above.
- 5. All windows and doors shall have aluminum insect screens. Provide wire mesh protective guards at all windows.
 - 6. The interior shall be divided by partitions into general and private office areas as specified herein. Provide a washroom located adjacent to the private office and a built-in wardrobe closet opposite the washroom. Provide a built-in desk in the private office(s) with fixed overhead shelf and clearance below for two (2) file cabinets.
 - 7. Provide a built-in drafting or reference table, located in the general office/conference room, at least 60 inches long by 36 inches wide with cabinet below and wall type plan rack at least 42 inches wide.
 - 8. The washroom shall be equipped with a flush toilet, wash basin with two (2) faucets, medicine cabinet, complete with supplies and a toilet roll tissue holder. Plumbing and fixtures shall be approved house type, with each appliance trapped and vented and a single discharge connection. Five (5) gallon capacity automatic electric heater for domestic hot water shall be furnished.
 - 9. HVAC: The trailer shall be equipped with central heating and cooling adequate to maintain a temperature of 72 degrees during the heating season and 75 degrees during the cooling season when the outside temperature is 5 degrees F. winter and 89 degrees F. summer.
 - 10. Lighting shall be provided via ceiling mounted fluorescent lighting fixtures to a minimum level of 50 foot candles in the open and private office(s) along with sufficient lighting in the washroom. Broken and burned out lamps shall be replaced by the Contractor. A minimum of four (4) duplex convenience outlets shall be provided in the open office and two (2) each in the private office(s). These outlets shall be in addition to special outlet requirements for computer stations, copiers, HVAC unit, etc.



11. Electrical service switch and panel shall be adequately sized for the entire trailer load. Provide dedicated circuits for HVAC units, hot water heater, copiers and other equipment as required. All wiring and installation shall conform to the New York City Electrical Code.
12. The following movable equipment shall be furnished:
 - a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks and two (2) full ball bearing two (2) drawer vertical legal filing cabinets in each private office located below built-in desk.
 - b. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
 - c. Three (3) metal wastebaskets.
 - d. One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
 - e. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Contract as required.
13. TRAILER TEMPORARY SERVICE: Plumbing and electrical work required for the trailer will be furnished and maintained as below.
 - a. **PLUMBING WORK:** The Contractor shall provide temporary water and drainage service connections to the DDC Field Office trailer for a complete installation. Provide all necessary soil, waste, vent and drainage piping.

Contractor to frost-proof all water pipes to prevent freezing.

 - 1) **REPAIRS, MAINTENANCE:** The Contractor shall provide repairs for the duration of the project until the trailer is removed from the site.
 - 2) **DISPOSITION OF PLUMBING WORK:** At the expiration of the time limit set forth in Sub-Section 3.8 B 1 herein, the temporary water and drainage connections and piping to the DDC Field Office trailer shall be removed by the Contractor and shall be plugged at the mains. All piping shall become the property of the Contractor for Plumbing Work and shall be removed from the site, all as directed. All repair work due to these removals shall be the responsibility of the Contractor.
 - b. **ELECTRICAL WORK:**
 - 1) The Contractor shall furnish, install and maintain a temporary electric feeder to the DDC Field Office trailer immediately after it is placed at the job site.
 - 2) The temporary electrical feeder and service switch/fuse shall be adequately sized based on the trailer load and installed per the New York City Electrical Code and complying with utility requirements.
 - 3) Make all arrangements and pay all costs to provide electric service.
 - 4) The Contractor shall pay all costs for current consumed and for maintenance of the system in operating condition, including the furnishing of the necessary bulb replacements lamps, etc., for the duration of the project and for a period of forty-five (45) days after the date of Substantial Completion.
 - 5) **Disposition of Electric Work:** At the expiration of the time limit set forth, the temporary feeder, safety switch, etc., shall be removed and disposed of as directed.
 - 6) All repair work due to these removals shall be the responsibility of the Contractor.
 - c. **MAINTENANCE**
 - 1) The Contractor shall provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels and soap and maintain the DDC Field Office in first-class condition, including all repairs, until the trailer is removed from the site.
 - 2) **Supplies:** The Contractor shall be responsible for providing (a) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (b) all supplies in connection with required computers and printers,



- including without limitation, an adequate supply of blank CD's/DVD's, storage boxes for blank CDs/DVDs, and paper and toner cartridges for the printer.
- 3) **Risk of Loss:** The entire risk of loss with respect to the DDC Field Office and equipment shall remain solely and completely with the Contractor. The Contractor shall be responsible for the cost of any insurance coverage determined by the Contractor to be necessary for the Field Office.
 - 4) At forty-five (45) days after the date of Substantial Completion, or sooner as directed by the Commissioner, the Contractors shall have all services disconnected and capped to the satisfaction of the Commissioner. All repair work due to these removals shall be the responsibility of the Contractor.
- d. **TELEPHONE SERVICE:** The Contractor shall provide and pay all costs for the following telephone services for the DDC Field Office trailer:
- 1) Separate telephone lines for one (1) desk phone in each private office.
 - 2) One (1) wall phone (with six (6) foot extension cord) at plan table.
 - 3) Separate telephone lines for the fax machine and internet access in each private office. Telephone service shall include voice mail.
 - 4) A remote bell located on outside of trailer
 - 5) The telephone service shall continue until the trailer is removed from the site.
- e. **PERMITS:** The Contractor shall make the necessary arrangements and obtain all permits and pay all fees required for this work.
- C. **RENTED SPACE:** The Contractor has the option of providing, at its cost and expense, rented office or store space in lieu of trailer. Said space shall be in the immediate area of the Project and have adequate plumbing, heating and electrical facilities. Space chosen by the Contractor for the DDC Field Office must be approved by the Commissioner before the area is rented. All insurance, maintenance and equipment, including computer workstations specified in Sub-Section 3.8 D in quantities required as specified in Sub-Section 3.8 B 3 for the DDC Field Office trailer, shall also apply to rented spaces.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 D

- D. **ADDITIONAL EQUIPMENT FOR THE DDC FIELD OFFICE:**
1. The Contractor shall provide a high volume copy machine (50 copies per minute) for paper sizes 8½ x 11, 8½ x 14 & 11 x 17. Copier shall remain at job site until the DDC Field office trailer is removed from the site.
 2. The Contractor shall furnish a fax machine and a telephone answering machine at commencement of the project for the exclusive use of the DDC Field Office. All materials shall be new, sealed in manufacturer's original packaging and shall have manufacturers' warranties. All items shall remain the property of the City of New York at the completion of the project.
 3. **COMPUTER WORKSTATION:** The Contractor shall provide one complete computer workstation, in quantities specified in Sub-Section 3.8.B.3, as specified herein:
 - a. **Hardware/Software Specification:**
 - 1) **Computer Equipment -** Computers shall be provided for all contracts that have a Total Consecutive Calendar Days for construction duration as set forth in Schedule "A" of 180 CCD's or greater. Contracts of lesser duration shall not require computers.
 - 2) Computers furnished by the Contractor for use by City Personnel, for the duration of the contract, shall be in accordance with Specific Requirements, contained herein, shall remain the property of the City of New York at the completion of the project and shall meet the following minimum requirements:
 - 3) **Personal Computer(s) – Each Workstation Configuration.**
 - a) **Make and Model:** Dell; HP; Gateway; Acer; or, an approved



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equivalent. (Note: an approved equivalent requires written approval of the Assistant Commissioner of ITS.)

- b) Processor: i5-2400 (6MB Cache, 3.1GHz) or faster computer - Single Processor.
 - c) System RAM: Minimum of 4GB (Gigabytes) Dual Channel DDR3 SDRAM at 1333MHz – 2 DIMMSs
 - d) Hard Disk Drive(s): 500 GB (Gigabytes) Serial ATA (7200RPM) w/DataBurst Cache, or larger.
 - e) CD-RW: Internal CD-RW, 48x Speed or faster.
 - f) 16xDVD+/-RW DVD Burner (with double layer write capability) 16x Speed or faster
 - g) I/O Ports: Must have at least one (1) Serial Port, one (1) Parallel Port, and three (3) USB Ports.
 - h) Video Display Card: HD Graphics (VGA, HDMI) with a minimum of 64 MB of RAM.
 - i) Monitor: 22" W, 23.0 Inch VIS, Widescreen, VGA/DVI LCD Monitor.
 - j) Available Exp. Slots: System as configured above shall have at least two (2) full size PCI Slots available.
 - k) Network Interface: Integrated 10/100/1000 Ethernet card.
 - l) Other Peripherals: Optical scroll Mouse, 101 Key Keyboard, Mouse Pad and all necessary cables.
 - m) Software Requirement: Microsoft Windows 7 Professional SP1, 32 bit; Microsoft Office Professional 2010 or 2013; Microsoft Project 2010; Adobe Acrobat reader; Anti-Virus software package with 2 year updates subscription; and, either Auto Cad LT or Microsoft Visio Standard Edition, as directed by the Resident Engineer.
- 4) DDC Field Office Specs: DDC Field Offices requiring computers shall be provided with the following:
- a) One (1) broad-band internet service account. Wideband Internet connectivity at a minimum throughput of 15 Mbps download and 5 Mbps upload is required at each field office location with 1-5 staffers. For larger field offices see table below for minimum required upload speeds. Telephone service should be bundled together with Internet connectivity. Because of throughput requirements Verizon FIOS is the preferred connectivity provider where available.

Office Personnel #	Upload Speeds (Minimum)
1 – 5	5 Mbps
6 – 10	10 Mbps
11 – 15	15 Mbps
16 – 20 ...	20 Mbps



This account will be active for the life of the project. The e-mail name for the account shall be the DDC Field Office/project Id (e.g. FLD K HWK666
McGuinness@earthlink.com).

- b) One (1) 600 DPI HP Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper (Legal Size)
 - c) All necessary cabling for equipment specified herein.
 - d) Storage Boxes for Blank CD's
 - e) Printer Table
 - f) UPS/Surge Suppressor combo
- 5) All computers required for use in the Engineer's Field Office shall be delivered, installed, and setup in the Field Office by the Contractor.
 - 6) All Computer Hardware shall come with a three (3) year warranty for on-site repair or replacement. Additionally, and notwithstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one (1) business day.
 - 7) An adequate supply of blank CDs/DVDs, and paper and toner cartridges for the printer shall be provided by the Contractor and shall be replenished by the Contractor as required by the Resident Engineer.
 - 8) It is the Contractor's responsibility to ensure that electrical service and phone connections are also available at all times; that is, the Field Office Computer(s) is to be powered and turned on twenty-four (24) hours each day.
 - 9) Broadband connectivity is preferred at each field office location. Please take into consideration that an extra phone line dedicated to the modem must be ordered as part of the contract unless Internet broadband connectivity, via Cable or DSL, is available at the planned field office location. Any questions regarding this policy should be directed to the Assistant Commissioner of Information Technology Services at 718-391-1761.
 - 10) Ownership: The equipment specified above shall, unless otherwise directed by the Commissioner, be the sole property of the City of New York upon delivery to the DDC Field Office. The Contractor shall prepare and maintain an accurate inventory of all equipment which it purchases for the DDC Field Office. Such inventory shall be provided to the City of New York. Upon completion of the required services, as directed by the Commissioner, the Contractor shall turn such equipment over to the City of New York.

E. HEAD PROTECTION (HARD HATS):

- 1. The Contractor shall provide a minimum of 10 standard protective helmets for the exclusive use of Department of Design and Construction personnel and their visitors. Helmets shall be turned over to the Resident Engineer and kept in the DDC Field Office.
- 2. Upon completion of the project, the helmets shall become the property of the Contractor.

3.9 MATERIAL SHEDS:

- A. Material sheds used by the Contractor for the storage of its materials shall be kept at locations which will not interfere at any time with the progress of any part of the work or with visibility of traffic control devices.
- B. Store combustible materials apart from the facility.



3.10 TEMPORARY ENCLOSURES:

- A. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
- B. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

3.11 TEMPORARY PARTITIONS:

- A. Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied tenant areas from fumes and noise.
 - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
 - 2. Construct dustproof partitions with 2 layers of 3-mil (0.07-mm) polyethylene sheet on each side. Cover floor with 2 layers of 3-mil (0.07-mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1219 mm) between doors. Maintain water-dampened foot mats in vestibule.
 - 3. Insulate partitions to provide noise protection to occupied areas.
 - 4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
 - 5. Protect air-handling equipment.
 - 6. Weather strip openings.
 - 7. Provide walk-off mats at each entrance through temporary partition.

3.12 TEMPORARY FIRE PROTECTION:

- A. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
- B. Prohibit smoking in all areas.
- C. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
- D. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
- E. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13

3.13 WORK FENCE ENCLOSURE:

- A. The Contractor shall furnish, erect and maintain a wood construction or chain-link fence to the extent shown on the drawings or required by the work enclosing the entire project on all sides. All materials used shall be new. Any permit required for the installation and use of said fence and costs shall be borne by the Contractor.
- B. WOOD FENCE shall be 7'-0" high with framing construction of yellow pine, using 4" x 4" approved preservative-treated posts on not more than 6'-0" centers, with three (3) rails of at least 2" x 4" size to which shall be secured minimum 1/2 inch thick exterior grade plywood. Posts shall be firmly fixed in the



ground at least 30" and thoroughly braced. Top edge of fence shall be trimmed with a rabbeted edge mould. Provide on the street traffic sides of fence, observation openings as directed.

1. **GATES** - Provide an adequate number of double gates, complete with hardware, located as approved by the Resident Engineer. Double gates shall have a total clear opening of 14'-0" with two (2) 7'-0" hinged swinging sections. Hanging posts shall be 6" x 6" and shall extend high enough to receive and be provided with tension or sag rods for the swinging sections.
 2. **PAINTING** - The fence and gates shall be entirely painted on the street and public sides with one (1) coat of exterior primer and one (1) top coat of exterior grade acrylic-latex emulsion paint. Black stenciled signs reading "POST NO BILLS" shall be painted on fence with three (3) inch high letters on 25 foot spacing for the entire length of fence on street traffic sides. Signs shall be stenciled five (5) feet above the sidewalk.
- C. **CHAIN-LINK FENCING** shall be minimum 2-inch thick, galvanized steel, chain-link fabric fencing; 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Fence shall be accurately aligned and plumb, adequately braced and complete with gates, locks and hardware as required. Under no condition shall fencing be attached or anchored to existing construction or trees.
- D. **ADDITIONAL REQUIREMENTS:**
1. It shall be the obligation of the Contractor to remove all posters, advertising signs, and markings, etc., immediately.
 2. Should the fencing be required to be relocated during the course of the Contract, it shall be done by the Contractor at no additional cost to the City.
 3. Where sidewalks are used for "drive over" purposes for Contractor vehicles, a suitable wood mat or pad shall be provided for protection of sidewalks and curbs.
 4. Where required, make provision for fire hydrants, lampposts, etc.
 5. **REMOVAL** - When directed by the Resident Engineer, the fence shall be removed.

3.14 RODENT AND INSECT CONTROL:

- A. **DESCRIPTION:** The Contractor shall provide all labor, materials, plant and equipment, and incidentals required to survey and monitor rodent activity and to control any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. Special attention should be paid to the following conditions or areas:
- 1 Wet areas within the project area, including all temporary structures.
 - 2 All exterior and interior temporary toilet structures within the project area.
 - 3 All Field Offices and shanties within the project area of all subcontractors and DDC.
 - 4 Wherever there is evidence of food waste and/or discarded food or drink containers, in quantity, that would cause breeding of rodents or the insects herein specified.
 - 5 Any other portion of the premises requiring such special attention.
- B. **MATERIALS:**
- 1 All materials shall be approved by the New York State Department of Environmental Conservation and comply with the New York City Health Code, OSHA and the laws, ordinances and regulations of State and Federal agencies pertaining to such chemical and/or materials.
- C. **PERSONNEL:**
- 1 All pest control personnel must be supervised by an exterminator licensed in categories 7A and 8.
- D. **METHODS:**
1. Application and dosage of all materials shall be done in strict compliance with the manufacturer's recommendations.



2. Any unsanitary conditions, such as uncollected garbage or debris, resulting from all Contractor's activities, which will provide food and shelter to the resident rodent population shall be corrected by the Contractor immediately after notification of such condition by the Resident Engineer.

E. RODENT CONTROL WORK:

- 1 In wetlands, woodlands and areas adjacent to a stream, special precautions must be taken to protect water quality and to ensure the safety of other wildlife. To prevent poisoned bait from entering streams, no poisoned bait shall be used in areas within seventy-five (75) feet of all stream banks. Live traps must be used in these seventy-five (75) foot buffer zone areas and within wetland and woodland areas.
- 2 In areas outside the seventy-five (75) foot zone of protection adjacent to streams, and in areas outside wetlands and woodlands, tamper proof bait stations with poisoned bait shall be placed during the period of construction and any consumed or decomposed bait shall be replenished as directed.
- 3 At least one month prior to initiation of the construction work, and periodically thereafter, live traps and/or rodenticide bait in tamper proof bait stations, as directed above, shall be placed at locations that are inaccessible to pets, human beings, children and other non-target species, particularly wildlife (for example-birds) in the project area.
- 4 The Contractor shall be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper proof bait stations. The Contractor shall also be responsible for posting and maintaining signs announcing the baiting of each particular location. The Contractor shall be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the project area.
- 5 It is anticipated that public complaints will be addressed to the Commissioner. The Contractor, where directed by the Commissioner, shall take appropriate actions, like baiting, trapping, proofing, etc., to remedy the source of complaint within the next six (6) hours of normal working time which is defined herein for the purposes of this section as 7 A.M. to 6 P.M. on Mondays through Saturdays.
- 6 Emergency service during the regular workday hours (Monday through Friday) shall be rendered within 24 hours, if requested by the Commissioner, at no additional cost to the City.

F. EDUCATION & NOTICES:

- 1 The Contractor shall post notices on all Construction Bulletin Boards advising workers, employees, and residents to call the Engineer's Field Office to report any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. The Contractor shall provide and distribute literature pertaining to IPM techniques of rodent control to affected businesses and superintendents of nearby residential buildings to ensure their participation in maintaining their establishments free of unsanitary conditions, harborage removal and rodent proofing.
- 2 Prior to application of any chemicals, the Contractor shall furnish to the Commissioner copies or sample labels for each pesticide, antidote information, and Material Data Safety Sheets (MSDS) for each chemical used.

G. RECORDS

1. The Contractor shall keep a record of all rodent and waterbug infestation surveys conducted by him/her and make available, upon request, to the Commissioner. The findings of each survey shall include, but not be limited to, recommended Integrated Pest Management (IPM) techniques, like baiting, trapping, proofing, etc., proposed for rodent and waterbug pest control.
2. The Contractor shall maintain records of all locations baited along with the type and quantity of rodenticide and insecticide bait used.



3.15 PLANT PEST CONTROL REQUIREMENTS and TREE PROTECTION REQUIREMENTS:

- A. Plant Pest Control Requirements: The Contractor and its subcontractors, including the Certified Arborist described below, shall comply with all Federal and New York State laws and regulations concerning Asian Longhorned Beetle (ALB) management, including protocols for ALB eradication and containment promulgated by the New York State Department of Agriculture and Markets (NYSDAM). The Contractor is referred to: (1) Part 139 of Title 1 NYCRR, Agriculture and Markets Law, Sections 18, 164 and 167, as amended, and (2) State Administrative Procedure Act, Section 202, as amended.
1. All tree work performed within the quarantine areas must be performed by New York State Department of Agriculture and Markets (NYSDAM) certified entities. Transportation of all host material, living, dead, cut or fallen, inclusive of nursery stock, logs, green lumber, stumps, roots, branches and debris of a half inch or more in diameter from the quarantine areas is prohibited unless the Contractor or its sub-contractor performing tree work has entered into a compliance agreement with NYSDAM. The terms of said compliance agreement shall be strictly complied with. Any host material so removed shall be delivered to a facility approved by NYSDAM. For the purpose of this contract host material shall be ALL species of trees.
 2. Any host material that is infested with the Asian Longhorned Beetle must be immediately reported to NYSDAM for inspection and subsequent removal by either State or City contracts, at no cost to the Contractor.
 3. Prior to commencement of tree work, the Contractor shall submit to the Commissioner a copy of a valid Asian Longhorned Beetle compliance agreement entered into with NYSDAM and the Contractor or its sub-contractor performing tree work. If any host material is transported from the quarantine area the Contractor shall immediately provide the Commissioner with a copy of the New York State 'Statement of Origin and Disposition' and a copy of the receipt issued by the NYSDAM approved facility to which the host materials are transported.
 4. Quarantine areas, for the purpose of this contract shall be defined as all five boroughs of the City of New York. In addition, prior to the start of any tree work, the Contractor shall contact the NYC Department of Parks & Recreation's Director of Landscape Management at (718) 699-6724, to determine the limits of any additional quarantine areas that may be in effect at the time when tree work is to be performed. The quarantine area may be expanded by Federal and State authorities at any time and the Contractor is required to abide by any revisions to the quarantine legislation while working on this contract. For further information please contact: NYSDAM (631) 288-1751.
- B. Tree Protection Requirements: The Contractor shall retain a Certified Arborist, as defined by New York City Department of Parks and Recreation (NYCDPR) regulations, to provide the services described below.
1. Surveys and Reports: The Certified Arborist shall, at the times indicated below, conduct a survey and prepare a plant material assessment report which includes: (1) identification, by species and pertinent measurements, of all plant material located on the project site, or in proximity to the project site, as described below, including all trees, significant shrubs and/or planting masses; (2) identification and plan for the containment of plant pests and pathogens, including the ALB, as described in paragraph A above; (3) evaluation of the general health and condition of any infected plant material.
 2. Frequency of Reports: The Certified Arborist shall conduct a survey and provide a plant material assessment report at two (2) points in time: (1) prior to the commencement of construction work; and (2) at the time of substantial completion. In addition, for projects exceeding 24 months in duration, the Certified Arborist shall conduct a survey and prepare a report at the midpoint of



construction. Copies of each plant material assessment report shall be submitted to the Resident Engineer within two (2) weeks of the survey.

- 3. Proximity to Project Site: Off-site trees, significant shrubs and/or planting masses shall be considered to be located in proximity to the project site under the circumstances described below.
 - a. The tree trunk, significant shrub, or primary cluster of stems in a planting mass is within 50 (fifty) feet of the project's Contract Limit Lines (CLLs) or Property Lines (PLs).
 - b. Any part of the tree or shrub stands within 50 (fifty) feet of: (a) a path for site access for vehicles and/or construction equipment; or (b) scaffolding to be erected for construction activity, including façade remediation projects.
 - c. The Certified Arborist determines that the critical root zone (CRZ) of an off-site tree, significant shrub, or primary cluster of stems in a planting mass extends into the project site, whether or not that plant material is located within the 50-foot inclusionary perimeter as outlined above.
- 4. Tree Protection Plan: The Certified Arborist shall prepare, and the Contractor shall implement, a Tree Protection Plan, for all trees that may be affected by any construction work, excavation or demolition activities, including without limitation, (1) on-site trees, (2) street trees, as defined below, (3) trees under NYCDPR jurisdiction as determined by the Department of Transportation, and (4) all trees that are located in proximity to the project site, as defined above. The Tree Protection Plan shall comply with the NYC DPR rules, regulations and specifications. The Contractor is referred to Chapter 5 of Title 56 of the Official Compilation of the Rules of the City of New York. Copies of the Tree Protection Plan shall be submitted to the Resident Engineer prior to the commencement of construction. Implementation of the Tree Protection Plan for street trees and trees under NYCDPR jurisdiction shall be in addition to any tree protection requirements specified or required for the project site. For the purpose of this article, a "street tree" means the following: (1) a tree that stands in a sidewalk, whether paved or unpaved, between the curb lines or lateral lines of a roadway and the adjacent property lines of the project site, or (2) a tree that stands in a sidewalk and is located within 50 feet of the intersection of the project's site's property line with the street frontage property line.
- C. No Separate Payment. No separate payment shall be made for compliance with Plant Pest Control Requirements or Tree Protection Requirements. The cost of compliance with Plant Pest Control Requirements and Tree Protection Requirements shall be deemed included in the Contractor's bid for the Project.

3.16 PROJECT IDENTIFICATION SIGNAGE:

- A. The Contractor shall provide, install and maintain Project identification and other signs where indicated to inform public and individuals seeking entrance to the Project.
- B. In order to properly convey notice to persons entering upon a City construction site, the Contractor shall furnish and install a sign at the entrance (gates) as follows:

NO TRESPASSING

AUTHORIZED PERSONNEL ONLY



- C. If no construction fence exists at the site, this notice shall be conveyed by incorporating the above language into safety materials (barriers, tape, and signs).
- D. Provide temporary, directional signs for construction personnel and visitors.
- E. Maintain and touch up signs so that they are legible at all times.

3.17 PROJECT CONSTRUCTION SIGN AND RENDERING:

A. PROJECT SIGN:

- 1 Responsibility: The Contractor shall produce and install one (1) project sign which shall be posted and maintained upon the site of the project at a place and in a position directed by the Commissioner. The Contractor shall protect the sign from damage during the continuance of work under the Contract and shall do all patching of lettering, painting and bracing thereof necessary to maintain the sign in first class condition and in proper position. Prior to fabrication, the Contractor shall submit an 8-1/2" x 11" color match print proof from the sign manufacturer of the completed sign for approval by the Commissioner.
- 2 Sign Quality: The Contractor shall provide all materials required for the production of the sign as specified herein. Workmanship shall be of the best quality, free from defects and shall be produced in a timely manner.
- 3 Schedule: Upon project mobilization, the Contractor shall commence production and installation of the sign.
- 4 Removal: At the completion of all work under the Contract, the Contractor shall remove and dispose of the project sign away from the site.
- 5 Sign construction:
 - a. Frame: The frame shall be from quality dressed 2"x2" pine, fire retardant, pressure treated lumber, that surrounds the inside back edge of the sign. The sign shall have one (1) intermediate vertical and two (2) diagonal supports, glued and screwed for rigidity. Frame shall be painted white with two (2) coats of exterior enamel paint, prior to mounting of sign panel.
 - b. Edging: U-shaped, 22 gauge aluminum edging, with a white enameled finish to match sign background, shall run around entire edging of sign panel and frame. Corners shall be mitered for a tight fit. Channel dimensions shall be 1" inch (overlap to sign panel face) x 1 3/4" (or as required across frame depth) x 1" (back overlap).
 - c. Sign Panel: 4' x 8' panel shall be constructed in one (1) piece of 14 gauge (.0785") 6061-T6 aluminum. This panel shall be pre-finished both sides with a glossy white baked-on enamel finish and be flush with edge of 2" x 2" wood frame. Samples must be submitted for approval.
 - d. Fastening: Fasten sign panel to wood frame using cadmium plated no. 8 sheet metal screws at 1/2" below edge of panel and 8" on center. The U-shaped aluminum channel shall be applied over the wood frame edge and fastened with cadmium plated no. 8 sheet metal screws at 12" on center around the entire perimeter.
- 6 Sign Graphics:
 - a. A digital file of the project sign will be provided to the Contractor by the Commissioner's representative for printing. The Commissioner's representative shall insert the project name and names and titles of personnel (3 or more) and any other required information associated with the project. All signs may include a second panel for a project rendering as described in Sub-Section 3.17.B herein.
 - b. The digital file shall be reproduced at the Sign Panel size of 4' x 8' on 3M High Performance Vinyl or approved equal. The 3M High Performance Vinyl or equivalent shall be guaranteed for nine (9) years. Guarantee must cover fading, peeling, chipping or cracking. The sign manufacturer is required to maintain all specified Pantone Matching System (PMS) type and other composition elements represented in the digital file of the project sign.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.17 B

B. PROJECT RENDERING:

1. **Responsibility:** In addition to the Project Sign, the Contractor shall furnish and install one (1) sign showing a rendering of the project. A digital file of the project rendering will be provided to the Contractor by the Commissioner's representative. From an approved image file provided by DDC, the Project Rendering is to be sized, printed, and mounted in an identical manner as described in Sub-Section 3.17.A above for the Project Sign. A color match print proof from the sign manufacturer of the Rendering Sign printed from the supplied file is to be submitted to DDC for approval before fabrication. The Rendering Sign is to be posted at the same height as the Project Sign. Where possible, the Rendering Sign shall be mounted with a perfect match of the short sides of the rectangle so that the Rendering Sign and the Project Sign together will create one long rectangle.
2. **Removal:** At the completion of all work under the Contract, the Contractor shall remove and dispose of the project rendering away from the site.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.18

3.18 SECURITY GUARDS/FIRE GUARDS ON SITE:

A. SECURITY GUARDS (WATCHMEN):

1. The Contractor shall provide competent Security Guard Service on the site, beginning on the date on which the Contractor commences actual construction work, or on such earlier date on which there is activity at the site related to the work, including without limitation, delivery of materials or construction set-up. The Contractor shall continue to provide such Security Guard Service until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. Throughout the specified time period, there shall be no less than one (1) Security Guard on duty every day, including Saturdays, Sunday and Holidays, 24 hours a day, except between the hours of 8:00 A.M. and 4:00 P.M. on any day which is a regular working day for a majority of the trade subcontractors. This exception during the working day shall not apply after the finishing painting of the plaster work is commenced; thereafter, not less than one (1) Security Guard shall be on duty continuously, 24 hours a day.
2. Every Security Guard shall be required to hold a "Certificate of Fitness" issued by the Fire Department. Every Security Guard shall, during his/her tour of duty, perform the duties of Fire Guard in addition to his/her security obligations.
3. Should the Commissioner find that any Security Guard is unsatisfactory; such guard shall be replaced by the Contractor upon the written demand of the Commissioner.
4. Each Security Guard furnished by the Contractor shall be instructed by the Contractor to include in his/her duties the entire construction site including the Field Office, temporary structures, and equipment, materials, etc.
5. Should the Contractor or any other subcontractor consider the security requirements outlined above inadequate, the Contractor shall provide such additional security as it thinks necessary, after obtaining the written consent of the Commissioner. The additional cost of such approved increased protection will be paid by the Contractor.
6. Nothing contained in this Sub-Section shall diminish in any way the responsibility of the Contractor and each subcontractor for its own work, materials, tools, equipment, nor for any of the other risks and obligations outlined hereinbefore in this Article.

- B. COSTS -** The Contractor shall employ Security Guards/Fire Guards throughout the specified time period, except as otherwise modified by the detailed Specifications and as approved by the Commissioner, for the purpose of safeguarding and protecting the site. All costs for Security Guards/Fire Guards shall be



- borne by the Contractor.
- C. **RESPONSIBILITY** - The Contractor and its subcontractors will be responsible for safeguarding and protecting their own work, materials, tools and equipment.

3.19 SAFETY:

- A. The Contractor, in compliance with requirements of Section 01 35 26, **SAFETY REQUIREMENTS PROCEDURES**, shall provide and maintain all necessary temporary closures, guard rails, and barricades to adequately protect all workers and the public from possible injury. Any removal of these items, during the progress of the work, shall be replaced by the Contractor at no additional cost to the City.

END OF SECTION 01 50 00



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date: July 1, 2019

(No Text on This Page)



**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 15 Stories
 - b. For New buildings over 15 Stories
 - c. For Existing Buildings
 2. Temporary Construction Hoists and Hoist ways (For Material and Personnel)

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
B. Section 01 42 00 REFERENCES
C. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS
D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING
E. Section 01 77 00 CLOSE OUT PROCEDURES

PART II – PRODUCTS (Not Used)

PART III – EXECUTION

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.1

3.1 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDINGS UP TO AND INCLUDING 15 STORIES:

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, one (1) selected main elevator for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevator in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevator and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.



- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.
- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevator, including without limitation: (1) installing and operating the temporary elevator, (2) maintaining the temporary elevator in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevator, (4) replacing the temporary elevator or any equipment or parts utilized in connection therewith, if required, due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevator, (6) providing all electric power required to operate the temporary elevator, (7) providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevator, and (8) providing all labor for the operation and maintenance of the temporary elevator, including on an overtime basis if necessary. The total Contract Price shall include all costs in connection with the temporary elevator, including without limitation, the costs specified herein.
- D. **COMMENCEMENT OF SERVICE:** The Contractor shall begin to provide temporary elevator service using the selected main passenger elevator no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or a temporary enclosure meeting the requirements of the law.
 2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks and any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room roof slab or that portion of its surrounding the elevator has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the machine room to the low voltage transformers and car light outlets in the center of shaft way and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- F. **REMOVAL:** When elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment and promptly proceed with the installation of the permanent equipment as required under the Contract.
- G. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection deems it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables and new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is



determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.

- H. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators shall be thoroughly cleaned. Where lubricated rails are used they shall be washed down. If roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- I. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- J. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this section beginning with the 41st working day after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2

3.2 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDING OVER 15 STORIES:

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, two (2) selected main elevators for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevators in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevators and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use. The two (2) elevators shall not be operated simultaneously.
- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevators and all equipment and/or parts utilized in connection therewith.
- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevators, including without limitation: (1) installing and operating the temporary elevators, (2) maintaining the temporary elevators in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevators, (4) replacing the temporary elevators or any equipment or parts utilized in connection therewith, if required due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevators, (6) providing all electric power required to operate the temporary elevators, (7) providing all necessary conduit and wiring connections for the proper operation



and signaling of the temporary elevators, and (8) providing all labor for the operation and maintenance of the temporary elevators, including on an overtime basis if necessary. The total Contract Price shall include all costs in connection with the temporary elevators, including without limitation, the costs specified herein.

- D. **LOW RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service using one (1) selected main passenger elevator no later than six (6) weeks (30 working days) after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. No later than one (1) week, five (5) working days, after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped the following work shall have been completed:
1. The shaft shall have been completely enclosed up to the 12th Floor by either the permanent or a temporary enclosure meeting the requirements of the law.
 2. A temporary machine room enclosure shall have been provided at the 11th Floor and shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors up to and including the 9th Floor at the shaft entrances to the elevator, solid substantial wood frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor not later than 10 calendar days after the 12th Floor slab or that portion of it surrounding the elevator, has been poured and stripped, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the temporary machine room, to the low voltage transformers and car light outlets in the center of the shaftway and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the Equipment is declared ready for such connections by the Resident Engineer.
- F. **HIGH RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service to all floors, using a selected main passenger elevator, no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed, the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or temporary enclosure, meeting the requirements of the law.
 2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
 3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
 4. There shall have been furnished and installed, solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.



- G. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room slab or that portion of it surrounding the elevator shaft has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the high rise elevator to be used for temporary service and shall have connected such feeders to the terminals on the motor-generator starter panels or controllers in the machine room, to the signal circuits low voltage transformers for the annunciators and car light outlets in the center of shaft way. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- H. When the high rise elevator is completed and ready for temporary operation, the low rise temporary elevator shall be shut down.
- I. **REMOVAL:** When one (1) or more elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment, and promptly proceed with the installation of the permanent equipment as required under the Contract.
- J. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection determines it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables, new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- K. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installations that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheaves spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be removed from the rails. The full cost of parts replacement cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- L. **LIMITATIONS ON USE:** The temporary elevators shall not be used during their operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- M. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this Section beginning with the 31st working day after the 12th Floor slab, or that portion of the 12th Floor slab surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR EXISTING BUILDINGS:

- A. The Contractor may use, at the Commissioner's discretion, one (1) selected elevator in the building for temporary operation by the Contractor for the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction over



the work at the Project. The operation of the temporary elevator and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.

- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.
- C. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the elevator for temporary operation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- D. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- E. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide elevator services described in this section beginning with 15 consecutive calendar days from Notice to Proceed. This charge will be deducted from any amount due and owing to the Contractor.

3.4 TEMPORARY HOISTS AND HOISTWAYS (FOR MATERIAL AND PERSONNEL):

- A. **RESPONSIBILITY:** The Contractor shall provide adequate numbers of material hoists for the most expeditious performance of all parts of the work including the work of all its subcontractors.
- B. **LOCATIONS:** No hoists shall be constructed at such locations as will interfere with, or affect the construction of, floor arches, or the work of subcontractors. The hoists may be located at the exterior sides of the structure or in the courtyard and extend upward adjacent to the line of window openings. The hoists shall be located a sufficient distance from the exterior walls and be so protected as to prevent any of the permanent work from being damaged, stained or marred.
- C. **ELEVATOR SHAFT:** Wherever possible, one or more of the permanent elevator shafts may be used as temporary hoist ways, providing such use complies with the requirements of the Building Code of the City of New York and has been approved by the Commissioner, and providing further it entails no interference with the progress of the work.
- D. **PROTECTION FOR INTERIOR HOISTS:** All interior material hoist ways shall be enclosed on each floor and shall be adequately protected with appropriate safety guards. In no event shall the protection be less than that required by law.

END OF SECTION 01 54 11



**SECTION 01 54 23
TEMPORARY SCAFFOLDING AND PLATFORMS**

PART 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 shall comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements*". This document is included in the Information for Bidders.

1.2 SUMMARY:

- A. This Section includes administrative and general procedural requirements for Temporary Scaffolding and Platforms, including:
 - 1. Conformance
 - 2. Responsibility
 - 3. Jobsite Documentation and Submittals
 - 4. Inspections
- B. This Section governs ALL scaffold used on DDC project sites including, but not limited to, Suspended Scaffold, Supported Scaffold and Sidewalk Sheds.

1.3 CONFORMANCE:

- A. Unless otherwise indicated, the Contractor is responsible for providing, erecting, installing and maintaining all temporary scaffolding and platforms which shall comply with requirements of Chapter 33 (Safeguards During Construction or Demolition) of the NYC Building Code, NYC Local Law 52 of 2005, OSHA Construction Standard 1926 Subpart L, and furnishing the items and personnel set forth in this section.

1.4 RESPONSIBILITY:

- A. Jobsite Safety Coordinator: The Contractor shall designate and employ a Jobsite Safety Coordinator, who shall be a competent person, who shall have a daily presence on the project site during scaffold use. This designee must possess and maintain a valid New York City Department of Buildings supported scaffold certificate of completion. An alternate shall also be designated, in the event that the Jobsite Safety Coordinator is absent. The Jobsite Safety Coordinator shall:
 - 1. Verify completeness of documentation and submittals (as described below).
 - 2. Verify that inspections are performed, including pull tests (see below), reports are filed and reported deficiencies are corrected.
 - 3. Monitor trades using scaffold.
 - 4. Limit access to scaffold areas that are tagged for non-use.
 - 5. Inform trades of scaffold load limitations.
 - 6. Monitor loading of decks.
 - 7. Verify that any ties that are temporarily removed are properly restored in the same shift.
 - 8. Verify that outriggers and planks that are moved are properly set up and secured.
 - 9. Verify that all scaffold decks in use have proper access/egress.



10. Verify that all open sides of decks in excess of 14 inches have proper guardrails and toe-boards.
 11. Notify appropriate parties, including but not limited to the Resident Engineer, site safety coordinator / monitor, site safety consultant, scaffold users, contractor and the scaffold engineer, of misuses, non-conformances, hazards and accidents.
 12. Keep a log of significant actions and events connected with the scaffolding.
- B. The Contractor shall be responsible for erecting, maintaining and dismantling the scaffolding and/or sidewalk shed in conformance with requirements of the New York City Building Code, OSHA and the Contract documents, including the specifications. The Contractor shall also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.
- C. The Contractor shall require the subcontractor responsible for erecting the scaffolding to engage a Scaffold Engineer, licensed as a professional engineer by the State of New York. The Scaffold Engineer shall be responsible to ensure the following: (1) that the installation design is in compliance with requirements of the New York City Building Code and OSHA, (2) that the design comports with the capabilities of the components and the characteristics of the site, (3) that scaffold loads on the host building, including netting, have been properly considered, and (4) that the design documents provide accurate information for erectors and users.
- D. Scaffold users are trade contractors assigned to work on the scaffold. Training certificates from a New York City Department of Buildings approved training provider are mandatory. These users have the duty to become familiar with the New York City Building Code and OSHA requirements germane to users, to obey the instructions of the Jobsite Safety Coordinator and to inform the Jobsite Safety Coordinator of known hazards, non-conformances or violations.

1.5 JOBSITE DOCUMENTATION AND SUBMITTALS:

The Contractor shall prepare, obtain and submit the following to the Resident Engineer:

- A. NYC Department of Buildings permit(s) for scaffold and sidewalk sheds (as applicable) including filing applications signed and sealed by a Professional Engineer licensed in the State of New York;
- B. Site logistics plan / site safety plan;
- C. Installation drawing(s), design and product data to be provided for all scaffold(s) and shed(s) must include, at a minimum:
 1. Plan(s);
 2. Elevation(s);
 3. Duty load designation; "standard" (150 psf live load) or "heavy duty" (300 psf live load).
 4. Details including base support, anchors and ties;
 5. Notes and specifications including load limits, number of planked levels, tie spacing, netting, and sequence of installation and removal.
 6. Anchorage into sound material.
 7. Load limits based on pull tests;
 8. Specifications for pull test(s), method, proof load and the number of trials;
 9. Elevations, levels or heights, where anchorage is made into masonry;
 10. Specifications for frames, planks, screw jacks, anchors, and any other ancillary hardware;
 11. Samples for anchors, ties and netting;
 12. Sequence of operations for erection and demolition;
 13. Location plan, heights, widths, "jumps" over doorways and driveways;
 14. Specify size, maximum span and maximum spacing of headers and stringers;
 15. Specify legs, girts, braces, nailing and connections;
 16. All sidewalk sheds shall be designed, engineered, signed and sealed by a Professional Engineer licensed in the State of New York;



- a. Generic (not job specific) engineering drawings are satisfactory for standard sheds and arrangements.
- b. Special engineering is required for custom sheds, site-specific problems or non-standard arrangements.

1.6 INSPECTIONS:

- A. Signed inspection reports shall be issued for each inspection and pull-test below, and shall be logged and maintained on site by the Jobsite Safety Coordinator for the duration of the project.
- B. Pull testing shall be required during design, and during or post erection, where anchorage is made into masonry. The Scaffold Engineer shall specify the test method, proof load and the number of trials.
- C. Sidewalk sheds shall be inspected after initial installation, major modification, or damage and thence every three months. Inspections shall be by a Scaffold Engineer for custom sheds and by a Competent Person employed by the Contractor for standard sheds.
- D. Scaffolds shall be inspected by the Scaffold Engineer during erection, post-erection and prior to use and thence every three months. The Scaffold Engineer shall repeat inspections after major alteration/modification, damage.
- E. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling, and the condition and integrity of the sidewalk sheds after high winds, major storms and at least once per month during usage.
- F. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling at least weekly, and the condition and integrity of the scaffold after high winds, major storms and at least once per month during usage.
- G. Scaffolds and Sidewalk Sheds shall be inspected daily by the Jobsite Safety Coordinator or alternate prior to use by scaffold users. The inspection results must be recorded in the maintenance log, and be available on-site at all times.
- H. At the completion of the project, submit all inspection documents as Miscellaneous Record Documents in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS.

1.7 LADDERS AND STAIRS:

- A. The Contractor shall provide and maintain ladders or temporary stairs extending from the street to the first story, and to and from every floor and roof level of the project.

1.8 ACCESS AND EXITS:

- A. The ladders or temporary stairs shall be of acceptable size, number and location, so that proper and convenient access may be had by those required to proceed to and from all parts of the project.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 54 23



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date: July 1, 2019

(No Text on This Page)



**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

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| C. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| D. | Section 01 74 19 | CONSTRUCTION WASTE MANAGEMENT & DISPOSAL |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |



1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 QUALITY ASSURANCE:

- A. Land Surveyor Qualifications: A professional land surveyor who is licensed in the State of New York and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 DELIVERY OF MATERIALS:

- A. Material Orders: The Contractor shall furnish to the Commissioner a copy of each material order, indicating date of order and quantity of material, and shall also notify the Commissioner when materials have been delivered to the site and in what quantities.
- B. Ample Quantities: The Contractor shall deliver materials in ample quantities to insure the most prompt and uninterrupted progress of the work so as to complete the work within the Contract time.
- C. Containers: The manufacturer's containers shall be delivered with unbroken seals and shall bear proper labels.
- D. Deliveries: The Contractor shall coordinate deliveries in order to avoid delaying or impeding the progress of the work.
- E. Handling: The Contractor shall provide equipment and personnel to handle products by methods to prevent soiling or damage.
 - 1. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
 - 2. Promptly return damaged shipments or incorrect orders to manufacturer.
 - 3. For materials or equipment to be reused or salvaged, use special care in removal, storage and reinstallation to insure proper function in completed work.
- F. Storage: Store products in accordance with provisions of Article 3.1, and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.
- G. Stacking: All materials shall be properly stacked in convenient places adjacent to the site, or where directed, and protected in a satisfactory manner. Stacked materials shall be so arranged as to not interfere with visibility of traffic control devices.
- H. Overloading: If authority is given to store materials in any part of the project area, they shall be so stored as to cause no overloading.



- I. **No Interference:** If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the work or interfering with the work to be done by any trade subcontractor, the Contractor shall remove and restack such materials at no additional cost to the City.

3.2 CONTRACTOR'S CONSTRUCTION SUPERINTENDENT:

- A. **Contractor's Construction Superintendent:** The Contractor shall devote its time and personal attention to the work and shall employ and retain at the project site, from the commencement until the entire completion of the work, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent shall be registered with the New York City Department of Buildings in compliance with the Construction Superintendent Rule of the City of New York and shall be competent and capable of maintaining proper supervision and care of the work and shall be acceptable to the Commissioner. The Construction Superintendent shall, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any subcontractor, shall see that the instructions of the Commissioner are carried out.
- B. **Replacement:** The Contractor's Construction Superintendent on the job shall not be changed or removed without the consent of the Commissioner.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3

3.3 SURVEYS:

- A. **Line and Grade:** The City will establish a baseline and bench mark near the site of the work for use of the Contractor in connection with the performance of the work.
- B. **Responsibility:** The Contractor shall establish all other lines and elevations required for its work and shall be solely responsible for the accuracy thereof.
- C. **Safeguard All Points:** The Contractor shall safeguard all points, stakes, grade marks and bench marks made or established by the Contractor on the work, shall re-establish same if disturbed and bear the entire expense of rectifying the work improperly installed due to not maintaining, not protecting or removing without authorization such established points, stakes, or marks.
- D. **City Monuments and Markers:** No work shall be performed near City monuments or marks so as to disturb them until the said monuments or marks have been referenced or reset or otherwise disposed of by the relevant Agency or party who installed them.
- E. **Foundations:** The Contractor shall furnish certification from a licensed Surveyor that all portions of the foundation work are located in accordance with the Contract Drawings and at the elevations required thereby. This certification shall show the actual locations and the actual elevations of all the work in relation to the locations and elevations shown on the Contract Drawings, including but not restricted to the following:
 1. The locations and elevations of all piles, if any.
 2. Elevations of tops of all spread footings, tops of pile caps, and tops of all foundation walls, elevator pit walls and ramp walls.
 3. Location of all footing centers and pier centers including those for exterior wall columns.
 4. Location of all foundation walls including wall columns, elevator pit walls and ramp walls.
- F. **Wall Lines:** After the first courses of masonry or stone have been laid, the Contractor shall establish the permanent lines of exterior walls. The Contractor shall furnish promptly, certification from a licensed Surveyor, in the form of signed original drawings showing the exact location of such wall lines, of all portions of all structures. Except at its own risk, the Contractor shall not proceed further with the erection of walls until the Surveyor's certification has been submitted and verified for correct location of wall lines.



- G. Surveyor: The Surveyor selected for any of the purposes mentioned in Paragraph E and Paragraph F above, and Paragraph I below, shall be a land Surveyor licensed in the State of New York and shall be subject to the approval of the Commissioner. The Surveyor shall not be a regular employee of the Contractor, nor shall the Surveyor have any interest in the Contract. The Surveyor shall not be employed by the Contractor in laying out any work, it being intended that the Surveyor's certification shall represent an independent and disinterested verification of such layout. The Surveyor shall report to the Department of Design and Construction's Resident Engineer each time upon arrival to and departure from the site and review with the Resident Engineer the data required for the project.
- H. Final Certification: Final certification shall be submitted upon completion of the work or upon completion of any subdivision of the work as directed by the Commissioner. Any exceptions or deviations from the drawings shall be noted on the final certificate and there shall be included any maps, plates, notes, pertinent documents and data necessary, in the opinion of the Commissioner, to constitute a full and complete report.
- I. Final Survey: The Contractor shall submit to DDC for submission to the Department of Buildings a final Survey by the licensed Surveyor showing the location of the new Structure, before completion of the Structure. This Survey shall show the location of the first tier of beams or of the first floor; the finish grades of the open spaces on the plot; the established curb level and the location of all other Structures on the plan, together with the location and boundaries of the lot or plot upon which the Structure is constructed, curb cuts, all yard dimensions, etc.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4

3.4 BORINGS:

- A. The work of this article shall be the responsibility of the Contractor unless otherwise indicated.
- B. Reference Drawings: The Boring Drawings as listed on the title sheet are for information to the bidder and are to be used under the conditions as follows:
 - 1. Boring Logs: shown on the Boring Drawings, record information obtained under engineering supervision in the course of exploration carried out by or under the direction of forces of the Department of Design and Construction at the site.
 - 2. Soils and Rock Samples: All inferences are drawn from the indications observed as made by engineering and scientific personnel. All such inferences and all records of the work including soil samples and rock cores, if any, are available to bidders for inspection.
 - 3. Certification of Samples: The City certifies that the work was carried out as stated, and that the soil samples and rock cores, if any were referred to, were actually taken from the site at the times, places and in the manner indicated. The samples are available for inspection in the Department of Design and Construction Subsurface Exploration Section.
 - 4. Bidder's Responsibility: The bidder, however, is responsible for any conclusions to be drawn from the work. If the bidder accepts those of the City, it must do so at its own risk. If the bidder prefers not to assume such risk, the bidder is under the obligation of employing its own experts to analyze the available information, and must be responsible for any consequences of acting on their conclusions.
 - 5. Continuity Not Guarantee: The City does not guarantee continuity of conditions shown at actual boring locations over the entire site. Where possible, borings are located to avoid all obstructions and previous construction which can be found by inspection of the surface and the bidder is required to estimate the influence of such features from its own inspection of the site.



3.5 EXAMINATION:

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground utilities and other construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with the subcontractor responsible for installation or application present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.6 ENVIRONMENTAL ASSESSMENTS:

- A. City Responsibilities: An Environmental Assessment and survey is performed by the NYC DDC and its findings are included in the Contract Documents. In accordance with the NYC Administrative Code Title 15 Chapter 1 an asbestos survey is required to be performed by an Asbestos Investigator certified by the NYC Department of Environmental Protection (DEP) to identify the presence of asbestos containing material (ACM) prior to any alteration, renovation or demolition activity. The findings of such survey are required for the submission of approvals and permits issued by the NYC Department of Buildings (DOB). When the findings indicate that asbestos containing material is present and will be disturbed during the alteration, renovation or demolition activity then abatement design specifications will be incorporated into the contract documents. The Contractor shall comply with all federal, state and local asbestos regulations affecting the work for this Contract.
- B. Contractor Responsibility: The Contractor shall comply with all federal, state and local environmental regulations, including without limitation USEPA and OSHA regulations which require the Contractor to assess if lead based paint will be disturbed during the work in order to protect his/her workers and the building occupants from migration of lead dust into the air. The Contractor shall comply with all federal, state and local environmental waste disposal regulation which may be required during the work. The Contractor is required to hire licensed abatement and disposal companies for the requisite work.

3.7 PREPARATION:

- A. Field Measurements: The Contractor shall verify all dimensions and conditions on the job so that all work will properly join the existing work.
- B. The Contractor, before commencing work, shall examine all adjoining work on which its work is in any way dependent on good workmanship in accordance to the intent of the Specifications and the Contract



Drawings. The Contractor shall report to the Commissioner any condition that will prevent it from performing work that conforms to the required standard.

- C. Existing Utility Information: Furnish information to the Commissioner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.8 DEFERRED CONSTRUCTION:

- A. Where necessity for deferred construction is certified by the Commissioner, in order to permit the installation of any item or items of equipment required to be furnished and installed concurrent with the time allowed for doing and completing the work of the Contract, the Contractor shall defer construction work limited to adequate areas as approved by the Commissioner.
- B. The Contractor shall confer with the affected trade subcontractors and ascertain arrangements, time and facilities necessary to be made by the Contractor in order to execute the provisions specified herein.

3.9 INSTALLATION:

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work and work of trade subcontractors to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Design Consultant.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.



- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.10 PERMITS:

- A. The Contractor shall comply with all local, state and federal laws, rules and regulations affecting the Work of this Project, including, without limitation, (1) obtaining all necessary permits for the performance of the Work prior to commencement thereof, and (2) complying with all requirements for the disposal of demolition and/or construction debris, waste, etc., including disposal in City landfills. The Contractor shall be responsible for all costs in connection with such regulatory compliance, unless otherwise specified in the Contract.

3.11 TRANSPORTATION:

- A. Availability: It shall be the duty of the Contractor to determine the availability of transportation facilities and dockage for the use of its employees, equipment and material and the conditions under which such use will be permitted.
- B. Costs: If transportation facilities and dockage are available and are permitted to be used by the governmental agency having jurisdiction, the Contractor shall pay all necessary costs and expenses, and abide by all rules and regulations promulgated in connection therewith.
- C. Vehicles: With respect to the use of vehicles on highways and bridges, the Contractor's attention is directed to the limitations set forth in the Rules of the City of New York, Title 34, Chapter 4, Section 4-15.
- D. Continued Use: It is understood that the Commissioner makes no warranty as to the continued use by the Contractor of such facilities.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.12

3.12 SLEEVES AND HANGERS:

- A. Coordinate with Progress Schedule: The Contractor shall promptly furnish and install conduits, outlets, piping sleeves, boxes, inserts and all other materials and equipment that is to be built into the work in conformity with the requirements of the project.
- B. Cooperation of Subcontractors: All subcontractors shall fully cooperate with each other in connection with the performance of the above work as "cutting in" new work is neither contemplated nor will it be tolerated.
- C. Timeliness: In the event that timely delivery of sleeves and other materials cannot be made, and to avoid delay, the Contractor may arrange to have boxes or other forms set at the locations where the piping or other material is to pass through or into the slabs, walls or other work. Upon the subsequent installation of the sleeves or other material, the Contractor shall fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in shall be borne by the Contractor.
- D. Inserts: The Contractor is to install strip inserts four (4) foot on center and perpendicular to beams in ceiling slabs of boiler, machine and mechanical equipment rooms. Inserts are to be installed for strippable concrete slabs only.



REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13

3.13 SLEEVE AND PENETRATION DRAWINGS:

- A. As soon as practicable after the commencement of work and when the order in which concrete for the first slabs, walls, etc. to be poured is determined, the Contractor shall submit to the DDC a sketch indicating the location and size of all penetrations for sleeves, ducts, etc. which will be required to accommodate the mechanical trades, in order to determine if such penetrations will materially weaken the project's structure. The sketch shall be stamped and returned if approved and/or comments will be transmitted. The Contractor shall continue to submit sketches as the pouring schedule and the concrete work progresses and, until approvals for the penetration sketches have been given. The Contractor shall not predicate its layout work on unapproved sketches.

3.14 CUTTING AND PATCHING:

- A. Responsibility: The Contractor shall do all cutting, patching and restoration required by its work, unless otherwise particularly specified in the Specifications.
- B. Restore Work: The Contractor shall restore any work damaged during the performance of the work.
- C. Competent Workers: All restoration work shall be done to the satisfaction of the Commissioner by competent workers skilled in the trade required by such restoration. If, in the judgment of the Commissioner, workers engaged in restoration work are incompetent, they shall be replaced immediately by competent workers.
- D. Structural Elements: Do not cut and patch structural elements without the prior approval, in writing, of the Resident Engineer.
- E. Operational Elements: Do not cut and patch operating elements and related components.
- F. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Commissioner's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- G. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.
- H. Removals: The Contractor must remove from the premises all demolished materials of every nature or description resulting from cutting, patching and restoration work, in accordance with the requirements hereinafter stipulated under Sub-Section 3.17 herein and as further required in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.15

3.15 LOCATION OF PARTITIONS:

- A. Within three (3) weeks after the concrete slabs have been poured on each floor level, the Contractor shall immediately locate accurately all of the partitions, including the door openings, on the floor slabs in a manner approved by the Resident Engineer.



3.16 FURNITURE AND EQUIPMENT:

- A. Responsibility: The Contractor is responsible for moving all loose furniture and/or equipment in all areas where the location of such furniture and/or equipment interferes with the proper performance of its work.
- B. Protection: All such furniture and/or equipment must be adequately protected with dust cloths and returned to their original locations when directed to do so by the Resident Engineer.

3.17 REMOVAL OF RUBBISH AND SURPLUS MATERIALS:

- A. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Comply with requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Rubbish: Rubbish shall not be thrown from the windows or other parts of the project. Mason's rubbish, dirt and other dust-producing material shall be wetted down periodically.
- C. Location: The Contractor shall clean Project site and work area daily and sweep up and deposit, at a location designated on each floor, all of its rubbish, debris and waste materials, as it accumulates and when directed by the Resident Engineer. Wood crating shall be broken up, neatly bundled, tied and stacked ready for removal and be deposited at a location designated on each floor.
 - 1. Comply with requirements in NYC Fire Department for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees F (27 degrees C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- D. Laborers: The Contractor shall be responsible for the removal of all rubbish, etc., from the site. The Contractor shall remove from the designated locations all piles of rubbish, debris, waste material and wood crating as they accumulate and when directed by the Resident Engineer, and shall remove them from the site. The Contractor shall employ and keep engaged for this purpose an adequate number of laborers.
- E. Surplus Materials: The Contractor shall remove from the site all surplus materials when there is no further use for same.
- F. Tools And Materials: At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly removed.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

3.18 CLEANING:

- A. The Contractor shall thoroughly clean all equipment and materials furnished and installed and shall deliver such materials and equipment undamaged in a clean and new appearing condition up to date of Final Acceptance.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.



- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration up to date of Final Acceptance.
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration up to date of Final Acceptance.

3.19 SECURITY AND PROTECTION OF WORK SITE:

- A. Provide protection of installed work, including appropriate protective coverings and maintain conditions that ensure installed Work is without damage or deterioration up to date of Final Acceptance.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.
- C. Secure and protect work and work site against damage, loss, injury, theft and/or vandalism.
- D. Maintain daily sign-in sheets of workers and visitors and make the sheets available to the Commissioner

3.20 MAINTENANCE OF SITE AND ADJOINING PROPERTY:

- A. The Contractor shall take over and maintain the Project site, after order to start work.
- B. The Contractor shall be responsible for the safety of the adjoining property, including sidewalks, paving, fences, sewers, water, gas, electric and other mains, pipes and conduits etc. until the date of Final Acceptance. The Contractor shall, at its own expense, except as otherwise specified, protect same and maintain them in at least as good a condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained and repaired to serviceable condition with materials to match existing.
- D. Provide and keep in good repair all bridging and decking necessary to maintain vehicular and pedestrian traffic.
- E. The Contractor shall also remove all snow and ice as it accumulates on the sidewalks within the Contract Limits Lines.

3.21 MAINTENANCE OF PROJECT SITE:

- A. The Contractor shall take over and maintain all project areas, after order to start work.
- B. Until the date of Final Acceptance, the Contractor shall be responsible for the safety of all project areas, including water, gas, electric and other mains and pipes and conduits and shall at the Contractor's own expense, except as otherwise specified, protect same and maintain them in at least as good condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained, and if damaged, repaired to serviceable conditions with materials to match existing.
- D. The Contractor shall keep the space for the Resident Engineer in a clean condition.

3.22 SAFETY PRECAUTIONS FOR CONTROL CIRCUITS:

- A. Control circuits, the failure of which will cause a hazard to life and property, shall comply with the New York City Dept. of Buildings, Bureau of Electrical Control requirements.

3.23 OBSTRUCTIONS IN DRAINAGE LINES:

- A. The Contractor shall be responsible for all obstructions occurring in all drainage lines, fittings and fixtures after the installations and cleaning of these drainage lines, fittings and fixtures as certified by the Resident Engineer. Roof drains shall be kept clear of any and all debris. Any stoppage shall be repaired immediately at the expense of the Contractor.

END OF SECTION 01 73 00



**SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

- A. This section includes administrative and procedural requirements for the management and disposal of construction waste and includes the following requirements:
1. Waste Management Goals
 2. Waste Management Plan
 3. Progress Reports
 4. Progress Meetings
 5. Management Plan Implementation
- B. This Section includes:
1. Definitions
 2. Waste Management Performance Requirements
 3. Reference Resources
 4. Submittals
 5. Quality Assurance
 6. Waste Plan Implementation
 7. Additional Demolition and Salvage Requirements
 8. Disposal

1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- D. Section 01 73 00 EXECUTION
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONSTRUCTION RECORD DOCUMENTS
- G. 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.
- B. 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 operating day to control vectors, fires, odors, blowing litter and scavenging.



- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- D. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.
- E. Construction and Demolition Waste: Solid wastes typically including building materials, trash debris and rubble resulting from remodeling, repair and demolition operations. Hazardous materials and land clearing waste are not included.
- F. Diversion from Landfill: To remove, or have removed, from the site for recycling, reuse or salvage, material that might otherwise be sent to a landfill.
- G. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.
- H. 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.
- I. Return: To give back reusable items or unused products to vendors.
- J. Reuse: To reuse excess or discarded construction material in some manner on the Project site.
- K. Salvage: To remove a waste material from the Project site for resale or reuse.
- L. 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.
- M. 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.
- N. Waste-to-Energy: The conversion of non-recyclable waste materials into usable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolyzation, anaerobic digestion and landfill gas recovery.

1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:

- A. The City of New York has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors shall be employed.
- B. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.5 C

- C. LEED CERTIFICATION: The City of New York will seek LEED (Leadership in Energy and Environmental Design) certification for this Project as indicated in the Addendum to the General Conditions from the U.S. Green Building Council. The documentation required here will be used for this purpose. LEED awards points for a variety of sustainable design measures on a project, one of which is the reuse and recycling of project waste.



- D. **DIVERSION REQUIREMENTS.** With the exception of LEED v4 projects with demolition ADC waste, a minimum of 75% of total Project demolition and construction waste (by weight) shall be diverted from landfill. LEED v4 projects with demolition ADC waste shall divert a minimum of 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
 11. Reuse items indicated on the Drawings and/or elsewhere in the Specification
- E. All fluorescent lamps, HID lamps and mercury-containing thermostats removed from the site shall be recycled. 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 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 web site: <https://www1.nyc.gov/site/ddc/about/sustainable-design.page>. A standard Construction and Demolition Waste Management Log form is included at the end of this section.
 2. Web Resources
(Information only; no warranty or endorsement is implied.)
www.wastematch.org Site of New York Waste Match, a materials exchange database and service
www.bignyc.org Site of Build It Green NYC, a non-profit outlet for salvaged and surplus building materials



www.usgbc.org Site of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D waste recycling

<http://www.epa.gov/epawaste/index.htm> Site of the U.S. Environmental Protection Agency that discusses construction and demolition waste issues, and links to other resources.

3. For Waste-to-Energy Facilities that need to comply with European Standard (EN) for waste management and emissions into air, soil, surface water and groundwater:

www.ec.europa.eu/environment/waste/framework/index.htm European Commission Waste Framework Directive 2008/98/EC

http://www.europa.eu/legislation_summaries/environment/waste_management European Commission Waste Incineration Directive 2000/76/EC

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 shall refer to Section 01 33 00 SUBMITTAL PROCEDURES for submittal requirements.
- B. The Contractor shall be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's subcontractors shall assist in the development of that Plan, and collect and deposit their waste and recyclable materials in accordance with the approved Plan.
- C. DRAFT WASTE MANAGEMENT PLAN. Within fifteen (15) days after receipt of 'Notice to Proceed', or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the Commissioner a Draft Waste Management Plan. Include separate sections for demolition and construction waste. The Plan shall demonstrate how the performance goals will be met, and contain the following:
1. List of materials targeted for reuse, salvage, or recycling, and names, addresses, and phone numbers of receiving facilities/companies that will be purchasing or accepting each material.
 2. Description of on-site and/or off-site sorting methods for all materials to be removed from site.
 3. If mixed construction and demolition waste is to be sorted off-site, provide a letter from the processor stating the average percentage of mixed construction and demolition waste they recycle.
 4. Landfill information: Names of landfills where non-recyclable/reusable/salvageable waste will be disposed, and list of applicable tipping fees.
 5. Materials handling procedures: Specify whether materials shall be separated or commingled and describe the planned diversion strategies. Describe expected amount of each material type, where materials shall be taken and how the recycling facility shall 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: Description of regular meetings to be held to address waste management.
 8. Sample spreadsheet and description of how the implementation of the plan will be documented 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 shall submit a Final Waste Management Plan.
- E. PROGRESS REPORTS. The Contractor shall submit monthly a Waste Management Progress Report, containing the following information:



1. Project title, name of company completing report, and dates of period covered by the report
 2. Report on the disposal of all jobsite waste. A DDC C&D Waste Management Log form is 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
 - g. Recipient of each material type
 3. Provide monthly and cumulative Project totals of waste, quantity diverted, and percentage diverted.
 4. Note that the unit of measure may be either tons or cubic yards, but must be consistent for all shipments and all materials throughout the Project. Reports with inconsistent or mixed units will not be reviewed and will be returned for re-submission.
 5. Include legible copies of on-site logs, weight tickets and receipts. Receipts shall be from charitable organizations, recycling and/or disposal site operators who can legally accept the materials for the purpose of reuse, recycling or disposal. Contractor shall save such original documents for the life of the Project plus seven (7) years.
- 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. For diverted materials, include at least four material streams
 2. For commingled facilities, submit documentation of recycling rates
 3. For waste-to-energy strategy, submit documentation of facility adherence to relevant EN standards, and justification of 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
 3. Date refrigerant was recovered

1.8 QUALITY ASSURANCE:

- A. The Contractor shall designate a Construction Waste Management Representative, to ensure compliance with this section. Coordinator shall be present at Project site full-time for the duration of the Project.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste management plans, documentation and implementation shall be discussed at the following meetings:
 1. Pre-demolition kick-off meeting



2. Pre-construction kick-off meeting
 3. Regular job-site meetings
 4. Contractor toolbox meetings
- 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 shall implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. The Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials and rubbish from the site in accordance with the approved Waste Management Plan. The Contractor shall oversee and document the results of the Plan. Monies received for salvaged materials shall remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications or indicated on the drawings as belonging to others.
- C. Responsibilities of Subcontractors: Each Subcontractor shall be responsible for collecting its waste, non-returned surplus materials and rubbish, in accordance with the Waste Management Plan.
- D. Distribution: The Contractor shall distribute copies of the Waste Management Plan to each Subcontractor, Resident Engineer, Construction Manager and Commissioner.
- E. Instruction: The Contractor shall provide on-site instruction of proper waste management procedures to be used by all parties in appropriate stages of the Project.
- F. Procedures: Conduct waste management operations to ensure minimum interference with site vegetation, roads, streets, walks and other adjacent occupied and used facilities.
 1. Collect 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 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



**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 Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- C. COMMISSIONING: Refer to the Addendum to identify whether this Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED- NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
B. Section 01 33 00 SUBMITTAL PROCEDURES
C. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL
D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
E. Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or



combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. Substantial Completion: shall mean the written determination by the Commissioner that the Work required under the Contract is substantially, but not entirely, complete.
- D. Final Acceptance: shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

1.5 SUBSTANTIAL COMPLETION:

- A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, the Contractor shall complete and supply all items required by the contract specifications, General Conditions, Addendum to the General Conditions, change orders or other directives from the Commissioner's representatives. The required items will include all contract requirements for substantial completion, including but not limited to items related to releases, regulatory approvals, warranties and guarantees, record documents, testing, demonstration and orientation, final clean up and repairs, and all specific checklist of items by the Resident Engineer. (See Attachment "A" at the end of this section for sample requirements for Substantial Completion).
- B. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the work is not complete.
- C. Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Substantial Completion. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer makes a determination that the work is substantially complete and approves the Final Punch List and the date for Final Acceptance, he/she will so advise the Commissioner and recommend issuance of the Certificate of Substantial Completion. If the Resident Engineer determines that the work is not substantially complete, he/she will notify the Contractor of those items that must be completed or corrected before the Certificate of Substantial Completion will be issued.
 - 1 Re-inspection: Contractor shall request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2 Results of completed inspection will form the basis of requirements for Final Acceptance.

1.6 FINAL ACCEPTANCE:

- A. Preliminary Procedures: Before requesting final inspection for Final Acceptance of the Work, the Contractor shall complete the following. (Note that the following are to be completed, submitted as appropriate, and approved by the Commissioner, as applicable, prior to the final inspection and are not to be submitted for approval or otherwise at the final inspection unless specifically indicated). List exceptions in the request.
 - 1. Verify that all required submittals have been provided to the Commissioner including but not limited to the following:
 - a. Manufacturer's cleaning instructions
 - b. Posted instructions
 - c. As-built Record Documents (Drawings, specifications, and product data) as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, incorporating any changes required by the Commissioner as a result of the review of the submission prior to the pre-final inspection.
 - d. Operation and Maintenance Manuals, including Preventive Maintenance, Special Tools, Repair Requirements, Parts List, Spare Parts List, and Operating Instructions.



- e. Completion of required Demonstration and Orientation, as applicable, of designated personnel in operation and maintenance of systems, sub-systems and equipment.
 - f. Applicable LEED Building submittals as described in Section 01 81 13.03, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS or Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.
 - g. Construction progress photographs as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
- 2. Submit a certified copy of the final approved Punch List of items to be completed or corrected. The certified copy of the Punch List shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.
 - 3. Submit pest-control final inspection report and survey as required in Section 01 50 00, TEMPORARY FACILITIES AND CONTROLS.
 - 4. Submit record documents and similar final record information.
 - 5. Deliver tools, spare parts, extra stock and similar items.
 - 6. Complete final clean-up requirements including touch-up painting of marred surfaces.
 - 7. Submit final meter readings for utilities, as applicable, a measured record of stored fuel, and similar data as of the date when the City took possession of and assumed responsibility for corresponding elements of the work.
- B. Final Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Final Acceptance of the Work. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further work remains to be done, he/she will so advise the Commissioner and recommend the issuance of the determination of Final Acceptance. If the Resident Engineer determines that the work is not complete, he/she will notify the Contractor of those items that must be completed or corrected before the determination of Final Acceptance will be issued.
 - C. Final Acceptance: The Work will be accepted as final and complete as of the date of the Resident Engineer's inspection if, upon such inspection, the Resident Engineer finds that all items on the Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

1.7 WARRANTIES:

- A. The items of materials and/or equipment for which manufacturer warranties are required are listed in Schedule B of the Addendum. For each item of material and/or equipment listed in Schedule B, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth in Schedule B and will be replaced or repaired within such specified period. The contractor shall deliver all required warranties to the Commissioner.
- B. Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.
- C. Submittal Time: Submit written Warranties on request of the Commissioner for designated portions of the Work where commencement of Warranties other than date of Substantial Completion is indicated.
- D. Partial Occupancy: Submit properly executed Warranties to the Commissioner within 15 days of completion of designated portions of the Work that are completed and occupied or used by the City.
- E. Organize the Warranty documents into an orderly sequence based on the Project Specification Divisions and Section Numbers.



1. Bind Warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES;" name and location of Project; Capitol Budget Project Number (FMS ID); and Contractor's and applicable subcontractor's name and address.
 3. Provide heavy paper dividers with plastic-covered tabs for each separate Warranty. Mark tab to identify the product or installation.
 4. Provide a typed description of each product or installation being warranted, including the name of the product, and the name, address, and telephone number of the Installer.
- F. When warranted materials and/or equipment require operation and maintenance manuals, provide additional copies of each required Warranty in each required manual. Refer to Section 01 78 39, CONTRACT RECORD DOCUMENTS, for requirements of Operation and Maintenance Manuals.

PART II – PRODUCTS

2.1 MATERIALS:

- A. **Cleaning Agents:** Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART III – EXECUTION

3.1 FINAL CLEANING:

- A. **General:** Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. **Cleaning:** Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations, as applicable, before requesting inspection for Final Acceptance of the Work for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.



- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
 - t. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests, as required in Section 01 50 00, TEMPORARY FACILITIES, SERVICES AND CONTROLS. Prepare and submit a Pest Control report to the Commissioner.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 REPAIR OF THE WORK:

- A. Subject to the terms of the Contract the Contractor shall complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Contractor shall repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
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3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00



SECTION 01 77 00

ATTACHMENT 'A'

The following list is a general sample of Substantial Completion requirements, including but not limited to:

1. Prepare and submit a list to the Resident Engineer, of incomplete items, the value of incomplete construction, and reasons the work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable Governing Authorities, including, but not limited to, Department of Buildings (DoB); Department of Transportation (DoT); Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation to include, but not limited to, the following:
 - a. Building Permits, Applications and Sign-offs.
 - b. Permits and Sign-off for construction fences; sidewalk bridges; scaffolds, cranes and derricks; utilities; etc.
 - c. Certificates of Inspections and Sign-offs.
 - d. Required Certificates and Use Permits.
 - e. Certificate of Occupancy (C.O.), Temporary Certificate of Occupancy (T.C.O.) or Letter of Completion as applicable.
4. Submit specific warranties required by the specifications, final certifications, and similar documents.
5. Prepare and submit Record Documents as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, including but not limited to; approved documentation from Governing Authorities; as-built record drawings and specifications; product data; operation and maintenance manuals; Final Completion construction photographs; damage or settlement surveys; final property surveys; and similar final record information. The Resident Engineer will review the submission and provide appropriate comments. If comments are significant the initial submission will be returned to the Contractor for correction and re-submission incorporating the comments prior to the Final Inspection.
6. Record Waste Management Progress Report: Submit C&D Waste Management logs, with legible copies of weight tickets and receipts required in accordance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
7. If applicable submit LEED Letter Template in accordance with the requirements of Section 01 81 13.03, 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 COMMISSIONING REQUIREMENTS.
15. Complete final cleaning requirements, including touchup painting.
16. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.



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SECTION 01 78 39
CONTRACT RECORD DOCUMENTS

PART 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. As-built Contract Record Drawings.
 2. As-built marked-up copies of Record Specifications, addenda and Change Orders.
 3. As-built marked-up Product Data
 4. Record Samples
 5. Construction Record Photographs
 6. Operating and Maintenance Manuals
 7. Final Site Survey
 8. Guarantees and Warranties
 9. Waste Disposal Documentation
 10. LEED Materials and Matrix
 11. Miscellaneous Record Submittals
- B. The Department of Design and Construction, at the start of construction (kick-off meeting), will furnish to the Contractor at no cost a complete set of Contract Drawings Mylars (reproducible) pertaining to the work to be performed under the Contract. It is the responsibility of the Contractor to modify the Contract Drawings to indicate all changes and corrections, if any, occurring in the work as actually installed. The Contractor is required to furnish all other Mylar (reproducible) drawings, if necessary, such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all work in detail as actually completed. All professional seals must be blocked out. Title box complete with Project title and Design Consultants' names will remain.
- C. Maintenance of Documents and Samples: The Contractor shall maintain, during the progress of the work, an accurate record of the work as actually installed, on Contract Record Drawings, on Mylar (reproducible), in ink. Store record documents and samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition. Make documents and samples available at all times for the Resident Engineer's inspections.
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 shall also show all connections, valves, gates, switches, cut-outs and similar operating equipment.
 2. For projects designated to achieve a LEED rating the Contractor shall receive a copy of the Project's LEED scorecard for the purpose of monitoring compliance with the target objectives and to facilitate



coordination with the LEED Consultant. The Contractor shall receive periodic updates of this scorecard and is required to submit the final version of the Scorecard at Substantial Completion with other Project Record Documents.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- C. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 PROJECT CLOSEOUT PROCEDURES

1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

- A. As-Built Contract Record Drawings: Comply with the following:
 1. Progress Submission: As directed by the Resident Engineer, submit progress As-Built Contract Record Drawings at the 50% Construction Completion stage.
 2. Final Submission: Before substantial completion payment, the Contractor shall furnish to the Commissioner one (1) complete set of marked-up Mylar (reproducible) As-Built Contract Record Drawings, in ink indicating all of the work and locations as actually installed, plus one (1) set of paper prints which will be furnished to the sponsoring agency by DDC.
 3. As-Built Contract Record Drawings shall be of the same size as that of the Contract Drawings, with a one (1) inch margin on three (3) sides and a two (2) inch margin on the left side for binding.
 4. Each As-Built Contract Record Drawing shall bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (1/2) inch high, and contain the following data:

AS-BUILT CONTRACT RECORD DRAWING

Contractor's Name _____
 Contractor's Address _____
 Subcontractor's Name (where applicable) _____
 Subcontractor's Address _____
 Made by: _____ Date _____
 Checked by: _____ Date _____

Commissioner's Representatives
 (Resident Engineer) DDC
 (Plumbing Inspector) DDC
 (Heating & Ventilating Inspector) DDC
 (Electrical Inspector) DDC



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5. Record Drawing Title Sheet: The Contractor shall prepare a title sheet, the same size as the Contract Record Drawings, which shall contain the following:
 - a. Heading:
The City of New York
Department of Design and Construction
Division of Public Buildings
 - b. Capital Budget Project Number (FMS ID)
 - c. Name and Location of Project
 - d. Contractor's Name and Address
 - e. Subcontractor's Name and Address (where applicable)
 - f. Record of changes (a caption description of work affected, and the date and number of Change Order or other authorization)
 - g. List of Record Drawings
- B. Record Specifications, Addenda and Change Order: Submit to the Commissioner two (2) copies each of marked-up Record Specifications, Addenda and Change Orders.
- C. Record Product Data: Submit to the Commissioner two (2) sets of Record Product Data.
- D. Record Construction Photographs: Submit to the Commissioner final as-built construction photographs and negatives of the completed work as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
- E. Operating and Maintenance Manuals:
 1. Submit three (3) copies each of preliminary manuals to the Resident Engineer for review and approval. The Contractor shall make such corrections, changes and/or additions to the manual until deemed satisfactory by the Resident Engineer. Deliver three (3) copies of the final approved manuals to the Resident Engineer for distribution.
 2. Commissioning: Comply with the requirements of Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, as well as the requirements set forth in sections of the Project Specifications, for projects designated for Commissioning. Submit four (4) copies each of data designated to be included in the Commissioning Operation and Maintenance Manual to the Resident Engineer. The Resident Engineer will forward such data to the Commissioning Authority/Agent (CxA) for review and comment. The Contractor shall make such corrections, changes and/or additions to the data until deemed satisfactory and deliver four (4) copies of the final data to the Resident Engineer for use by the Commissioning Authority/Agent (CxA) to prepare the Commissioning Operation and Maintenance Manual.
 - a. Non-Commissioning Data: All remaining data not designated for Commissioning and required as part of Maintenance and Operation Manual shall be prepared and assembled in accordance with the requirements of this section for Operating and Maintenance Manuals.
- F. Final Site Survey: Submit Final Site Survey as described in Section 01 73 00, EXECUTION, in quantities requested by the Commissioner, signed and sealed by a Land Surveyor licensed in the State of New York.
- G. Guarantees and Warranties.
- H. Waste Disposal Documents and Miscellaneous Record Documents.



PART II – PRODUCTS

2.1 CONTRACT RECORD DRAWINGS:

- A. Record Prints: The Contractor shall maintain one set of blue- or black-line white prints as applicable of the Contract Drawings and Shop Drawings. If applicable, the Record Contract Drawings and Shop Drawings shall incorporate the arrangement of the work based on the accepted Master Coordination Drawing(s) as described in Section 01 33 00, SUBMITTAL PROCEDURES.
1. Preparation: The Contractor shall mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Change Orders: All changes from Contract Drawings shall be distinctly encircled and identified by Change Order number correlating to changes listed on the "Title Sheet." The Contractor shall show within the encircled areas the work as actually installed.
- B. Content: Types of items requiring marking include, but are not limited to, the following:
1. Dimensional changes to Drawings.
 2. Revisions to details shown on Drawings.
 3. Depths of foundations below first floor.
 4. Locations and depths of underground utilities.
 5. Revisions to routing of piping and conduits.
 6. Revisions to electrical circuitry.
 7. Actual equipment locations.
 8. Duct size and routing.
 9. Locations of concealed internal utilities.
 10. Changes made by Change Order
 11. Changes made following Commissioner's written orders.
 12. Details not on the original Contract Drawings.
 13. Field records for variable and concealed conditions.
 14. Record information on the Work that is shown only schematically.
- C. Progress Record Mylar's (reproducible): As directed by the Resident Engineer at 50% construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When directed by the Resident Engineer transfer progress mark-ups to a full set of Mylar's (reproducible) and submit one blue line or black line record copy to the Resident Engineer. The marked-up Mylar's (reproducible) shall be retained by the Contractor for completion of mark-up and final submission.
- D. Final Contract Record Mylar's (reproducible): Immediately before final inspection for Certificate of Substantial Completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When authorized, complete mark-up of a full set of corrected Mylar's (reproducible) of the Contract Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
 2. Refer instances of uncertainty to Resident Engineer for resolution.
 3. Print the As-Built Contract Drawings and Shop Drawings for use as Record Transparencies as described in Sub-Section 1.5.



2.2 RECORD SPECIFICATIONS, ADDENDA AND CHANGE ORDERS:

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders and Record Drawings where applicable.
 - 6. Upon completion of mark-up, submit two (2) complete copies of the marked-up Record Specifications to the Commissioner.

2.3 RECORD PRODUCT DATA:

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. If possible, a Change Order proposal should include resubmitting updated Product Data. This eliminates the need to mark up the previous submittal.
 - 4. Note related Change Orders and Record Drawings where applicable.
 - 5. Upon completion of mark-up submit to the Commissioner two (2) sets of the marked-up Record Product Data.
 - 6. Where Record Product Data is required as part of Maintenance Manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

2.4 RECORD SAMPLE SUBMITTAL:

- A. Prior to the date of Substantial Completion, the Contractor shall meet with the Resident Engineer at the site to determine which of the Samples maintained during the construction period shall be transmitted to the Commissioner for record purposes.
- B. Comply with the Resident Engineer's instructions for packaging, identification marking and delivery to DDC. Dispose of other samples as specified for disposal of surplus and waste material.

2.5 OPERATING AND MAINTENANCE MANUALS:

- A. The Contractor shall provide preliminary and final versions of Operating and Maintenance Manuals required for those systems, equipment and materials listed in other Sections of the Project Specifications.
- B. Format: Prepare and assemble Operation and Maintenance Manuals in heavy-duty, 3-ring, hardback loose leaf binders in the form of an instructional manual. All binders for each discipline shall be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front shall contain permanently attached labels displaying the following:



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1. Heading:
The City of New York
Department of Design and Construction
Division of Public Buildings
 2. Capital Budget Project Number (FMS ID)
 3. Name and Location of Project
 4. Contractor's Name and Address
 5. Subcontractor's Name and Address (where applicable)
 6. Dates of the work covered by the contents of the Project Manual.
 7. Binder spine shall display Project Number (FMS ID) and date of completion.
- C. Organization: Include a section in the directory for each of the following:
1. List of documents
 2. List of systems
 3. List of equipment
 4. Table of contents
- D. Each manual shall 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 and sequence of Table of Contents of the Project Manual. 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 shall be visibly highlighted within each maintenance procedure. Use of such highlights shall be limited to only critical items and shall not be used in an excessive manner which would reduce their effectiveness.
- 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 shall be new. Copies used for prior submittals or used in construction shall not be used.
- J. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.
- K. Manuals shall present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations shall preferably consist of line drawings. All applicable drawings shall be included. If available, color photograph prints may be included.
- L. Preliminary manual editions shall be as technically complete as the final manual edition. All illustrations shall be in final forms.
- M. Final manual editions shall be technically accurate and complete and shall represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All



illustrations, text and tabular material shall be in final form. All shop drawings shall be included as specified in individual Specification Sections.

- 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.

2.6 DEMONSTRATION AND ORIENTATION DVD:

- A. The Contractor shall submit final version of applicable Demonstration and Training DVD recordings in compliance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

2.7 GUARANTEES AND WARRANTIES:

- A. SCHEDULE B – Requirements for guarantees and warranties for the Project are set forth in Schedule B, which is included as part of the Addendum.
- B. FORM – For all guarantee requirements set forth in Schedule B, the Contractor shall provide a written guaranty, in the form set forth herein.
- C. Submit fully executed and signed manufacturers' Warranties as listed in the Project Specifications and outlined in Schedule B of the Addendum. Refer to Section 01 77 00, CLOSEOUT PROCEDURES for submittal requirements.



GUARANTY

DDC PROJECT # _____

PROJECT DESCRIPTION _____

CONTRACT # _____

SPECIFICATION SECTION # AND TITLE _____

GUARANTY TO BE IN EFFECT FROM _____

TO _____

The Contractor hereby guarantees that the work specified under the above section of the aforesaid Contract will be free from defects of material and/or workmanship, for the period indicated above.

The Contractor also guarantees that it will promptly repair, restore, rebuild or replace whichever may be deemed necessary by the City, any or all defective material or workmanship of the aforementioned section, that may appear within the guaranty period and any finished work to which damage may occur because of such defects, to the satisfaction of the City and without any cost or expense to the City.

The Contractor hereby agrees to pay to the City the cost of the repairs or replacements should the City make the same because of the failure of the Contractor to do so.

Contractor: _____

By: _____
Signature of Partner or Corporate Officer

Print Name: _____

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

Notary Public



2.8 WASTE DISPOSAL DOCUMENTATION:

- A. Certify and deliver to the Commissioner all documentation including reports, receipts, certificates, records etc. for the collection, handling, storage, classification, testing, transportation, recycling and/or disposal of all Non-Hazardous Construction Waste as required by Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, and Hazardous Waste as required by other Project Specification Sections. Certify compliance with all applicable governing laws, codes, rules and regulations.

2.9 MISCELLANEOUS RECORD DOCUMENTS:

- A. Refer to other Project Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete miscellaneous records and place in good order, properly identified and bound or otherwise organized to allow for use and reference.
- B. Submit three (3) copies of each document to the Commissioner or as otherwise directed by the Commissioner.

PART III – EXECUTION

3.1 RECORDING AND MAINTENANCE:

- A. Recording: Maintain one copy of each submittal during the construction period for Contract Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to the Contract Record Documents for the Resident Engineer's reference during normal working hours.

END OF SECTION 01 78 39



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**SECTION 01 79 00
DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION**

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 79 00

PART 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 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 shall provide the services of equipment manufacturers orientation specialists experienced in the type of equipment to be demonstrated.
- C. Separate Orientation sessions shall be conducted for mechanical operations and maintenance personnel and for electronic and electrical maintenance personnel.
- D. Commissioning: Refer to the Addendum to identify whether this project is to be Commissioned. For Commissioned projects the Contractor shall provide Demonstration and Orientation as described in this section and cooperate with the Commissioning Authority/Agent (CxA) to implement Commissioning requirements as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS For MEP Systems, and/ or Section 01 91 15 BUILDING ENCLOSURE COMMISSIONING REQUIREMENTS.

1.3 RELATED SECTIONS: include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 77 00 CLOSEOUT PROCEDURES
- D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
- E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS
- F. Section 01 91 15 BUILDING ENCLOSURE COMMISSIONING 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.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.5 SUBMITTALS:

- A. Instruction Program: Submit three (3) copies of outline of instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Commissioner for approval no less than thirty (30) days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.
 - 1. At completion of orientation, submit three (3) complete 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 list of participants and length of instruction time.
- D. Evaluations: For each participant and for each orientation module, submit results and documentation of performance-based test.
- E. Submit all final orientation material to the Resident Engineer a minimum of fourteen (14) days prior to the scheduled orientation.
- F. Demonstration and Orientation Recordings:
 - 1. All Projects:
 - a. The Contractor shall 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 shall submit one (1) additional copy of the Demonstration and Orientation video recording to the Commissioning Agent 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. 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.



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- c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function including auxiliary equipment and systems.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties
 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.



- d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
 - h. Housekeeping practices
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART III – EXECUTION

3.1 INSTRUCTION:

- A. **Facilitator:** Engage a qualified facilitator to prepare instruction program and 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 shall engage qualified instructors to instruct facility's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. **Scheduling:** Schedule instruction with the Resident Engineer at mutually agreed times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule orientation with the Resident Engineer with at least fourteen (14) days' advance notice.
- D. **Evaluation:** At conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral a written or a demonstration performance-based test.
- E. **Cleanup:** Collect and remove used and leftover educational materials from project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial orientation use.

3.2 DEMONSTRATION AND ORIENTATION VIDEO RECORDINGS:

- A. All projects:
 - 1. The Contractor shall 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 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 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.



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Issue Date: July 1, 2019

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 shall 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 shall ensure that these requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated LEED BUILDING criteria.

B. This Section includes:

1. Definitions
2. LEED Provisions
3. LEED Building Submittals
4. LEED Building Submittal Requirements
5. LEED Action Plan

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|---------------------|--|
| A. | Section 01 74 19 | CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL |
| B. | Section 01 81 13.13 | VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,
SEALANTS, PAINTS AND COATINGS 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.



- B. Agrifiber Products: Products derived from recovered agricultural waste fiber from sources such as cereal straw, sugarcane bagasse, sunflower husk, walnut shells, coconut husks, and agricultural prunings, processed and mixed with resins to produce panels with characteristics similar to composite wood.
- C. Composite Wood: Products composed of wood or plant particles or fibers bonded by a synthetic resin or binder to produce panels such as plywood, particleboard, and medium density fiberboard (MDF). Does not include hardboard, structural panels, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber.
- D. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- E. Forest Stewardship Council (FSC) Certified Wood: Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
- F. LEED: The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council.
- G. Rapidly Renewable Materials: Materials made from agricultural products that are typically harvested within a ten-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
- H. Regionally Manufactured Materials: Materials that are manufactured within a radius of 500 miles from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
- I. Regionally Extracted, Harvested, or Recovered Materials: Materials which are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.
- J. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
 - 1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
 - 2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.
 - 3. "Pre-consumer" may also be referred to as "post-industrial".
- K. Solar Reflectance Index (SRI): A measure of a material's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is equal to 0, and a standard white (reflectance 0.80, emittance of 0.90) is equal to 100.
- L. Volatile Organic Compound (VOC): Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.



1.5 LEED PROVISIONS:

- A. Refer to the Addendum for the LEED rating to be achieved for this project. The provisions to achieve this LEED rating are integrated within the project construction documents and specifications. The Contractor is specifically directed to the "LEED BUILDING Performance Criteria" and "LEED BUILDING Submittals" sections within the contract specification. Additional LEED requirements are met through aspects of the project design, including material and equipment selections, which may not be specifically identified as LEED BUILDING requirements. Compliance with the requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests.

1.6 LEED BUILDING SUBMITTALS:

- A. Scope: LEED BUILDING submittals are required for all installed materials included in General Construction work. LEED BUILDING Submittals are only required for field-applied adhesives, sealants, paints and coatings included in Plumbing, Mechanical and Electrical work. Submit all required LEED BUILDING submittals in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. Applicability: The extent of the LEED BUILDING Submittals varies depending on the specification section. Applicable LEED BUILDING Submittals are listed under the "LEED BUILDING Submittals" heading in each specification section. The detailed requirements for the LEED BUILDING Submittals are defined in Item C below.
- C. Detailed Requirements: Sub-Sections 1.6 C.1 through 1.6 C.3 below defines the information and documents to be provided for each type of LEED BUILDING Submittal as identified in the LEED Submittal Requirements of each specification section:
1. ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM (EBMCF)[GHI]: Information to be supplied for this form (blank sample copy attached at end of this Section to be modified as appropriate to the project) shall include some or all of the following items, as identified in the LEED Submittal Requirements of each specification section:
 - a. Cost breakdowns for the materials included in the contractor or sub-contractor's scope of work. Cost reporting shall include itemized material costs (excluding the contractor's labor, equipment, overhead and profit).
 - b. The percentages (by weight) of post-consumer and/or post-industrial recycled content in the supplied product(s).
 1. For each product with recycled content, also indicate the total recycled content value ($1/2 \times \text{pre-consumer percentage} \times \text{product value} + 1 \times \text{post-consumer percentage} \times \text{product value} = \text{total recycled content value}$).
 2. See additional requirements for concrete below.
 - c. Identification (Yes/No) of materials manufactured within 500 miles of the project site AND containing raw materials harvested or extracted within 500 miles of the project site.
 - 1) Indicate the percentage by weight, relative to the total weight of the product that meets these criteria.
 - 2) Indicate the point of harvest/extraction/recovery of regional raw materials, the point of final assembly of regional manufactured products, and the distance from each point to the project site.
 - d. Volatile Organic Compound (VOC) content of all field-applied adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon, less water.
 - 1) For detailed requirements refer to Section 01 81 13.13 VOC LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS.
 - e. The amount of "Forest Stewardship Council (FSC) Certified" wood products if used in the Project.
 - 1) Record only new FSC-certified wood products. Do not record reclaimed, salvaged, or recycled FSC-certified wood products.



- 2) Reclaimed, salvaged, or recycled FSC-certified wood may be recorded as post-consumer recycled content.
 - f. The amount of Rapidly Renewable materials if used in the Project.
 - 1) Indicate the type of rapidly renewable material used, and the percentage by weight, relative to the total weight of the product, that consists of rapidly renewable material.
 - g. The percentage (by weight), relative to the total weight of cementitious materials, of supplementary cementitious materials or pozzolans such as fly ash used in each concrete mix used in the Project.
 - 1) For each concrete mix, provide a complete breakdown of all components, by weight and by cost.
 - h. Identification (Yes/No) of composite wood or agrifiber products used in the project that are free of added urea-added formaldehyde resins.
 - i. Identification (Yes/No) of flooring products used in the project that have Carpet and Rug Institute (CRI) Green Label or Green Label Plus certification, or Resilient Floor Covering Institute FloorScore certification.
 - 1) Untreated solid wood flooring, and mineral-based flooring products such as tile, masonry, terrazzo, and cut stone that have no organic-based coatings or sealants, are excluded from this requirement.
 - j. The EBMcF shall record the above information only for those materials or products permanently installed in the project. The EBMcF shall record VOC content, composite and agrifiber products, and CRI or FloorScore ratings only for those materials or products permanently installed within the weather barrier of the LEED building.
2. **EBMcF BACK-UP DOCUMENTATION:** These documents are used to validate the information provided on the EBMcF (except cost data). For each material listed on the EBMcF, provide documentation to certify the material's LEED BUILDING attributes, as applicable:
- a. **RECYCLED CONTENT:** Provide published product literature or letter of certification on the manufacturer's letterhead certifying the amounts of post-consumer and/or post-industrial content.
 - b. **REGIONAL MANUFACTURING AND REGIONAL RAW MATERIALS (WITHIN 500 MILES):** Provide published product literature or letter of certification on the manufacturer's letterhead indicating the city/state where the manufacturing plant is located, where each of the raw materials in the product were extracted, harvested or recovered and the distance in miles from the project site.
 - 1) If only some of the raw materials for a particular product or assembly originate within 500 miles of the project site, provide the percentage (by weight) that these materials comprise in the complete product.
 - c. **VOC CONTENT:** Provide Material Safety Data Sheets (MSDS) certifying the Volatile Organic Compound (VOC) content of the adhesive, sealant, paint, or coating products. VOC content is to be reported in grams/liter or lbs./gallon, less water. If the MSDS does not show the product's VOC content, this information must be provided through other published product literature from the manufacturer, or stated in a letter of certification from the product manufacturer on the manufacturer's letterhead.
 - d. **RAPIDLY RENEWABLE MATERIALS:** If used in the project, provide published literature or letter of certification on the manufacturer's letterhead certifying the percentage of each product that is rapidly renewable (by weight).
3. **PRODUCT CUT SHEETS:** Provide product cut sheets with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project.
4. **CRI GREEN LABEL PLUS CERTIFICATION:** For carpets and carpet cushions, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the "Green Label Plus" IAQ testing program of the Carpet and Rug Institute of Dalton, GA.



5. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER RESINS:** For all composite wood, engineered wood and agrifiber products (including plywood, particleboard, and medium density fiberboard), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products do not contain added urea-formaldehyde resins.
6. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER LAMINATING ADHESIVES:** For all laminating adhesives used with composite wood, engineered wood and agrifiber products (e.g., adhesives used to laminate wood veneers to an engineered wood substrate), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the adhesive products do not contain urea-formaldehyde.
7. **FSC-CERTIFIED WOOD:**
 - a. If used in the project, provide chain of custody documents and copies of invoices regarding wood products, including whether or not such wood product is FSC-certified.
 - b. If used in the project, for assemblies, provide the percentage (by cost and by weight) of the assembly that is FSC-certified wood.
 - c. If used in the project, for assemblies, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the percentage that is FSC-certified wood.
8. **GREEN SEAL COMPLIANCE:** Provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the following product types comply with the VOC limits and chemical component restrictions developed by the Green Seal organization of Washington, DC:
 - a. Interior Architectural Paints and Coatings: refer to Green Seal standard GS-11 (1st edition, May 1993)
 - b. Anti-corrosive and Anti-rust paints: refer to Green Seal standard GC-03 (2nd Edition, January 1997)
 - c. Aerosol Adhesives: refer to Green Seal standard GS-36 (1st edition, October 2000)
9. **HIGH ALBEDO PAVING AND WALKWAY MATERIALS:** For paving and walkway materials made from concrete or brick provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying a minimum Solar Reflectance Index (SRI) value of 29. SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.
10. **HIGH ALBEDO ROOFING MATERIALS:** For exposed roofing membranes, pavers, and ballast products, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following minimum Solar Reflectance Index (SRI) values:
 - a. 78 for low-sloped roofing applications (slope \leq 2:12)
 - b. 29 for steep-sloped roofing applications (slope $>$ 2:12)

SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.

Vegetated roof surfaces are exempt from the SRI criteria.
11. **LOW MERCURY LAMPS:** For all fluorescent, compact fluorescent, and HID lamps installed in the project, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying:
 - a. The mercury content or content range per lamp in milligrams or picograms;
 - b. The design light output per lamp (light at 40% of a lamp's useful life) in lumens; and
 - c. The rated average life of the lamp in hours.



In addition, provide the total number of each lamp type installed in the project.

12. **FLOORSCORE CERTIFICATION:** For all hard surface flooring, including vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, and wall base, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the current FloorScore standard requirements.
13. **CONCRETE:** Provide concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state in which the concrete manufacturer or supplier is located.
14. **INTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed within the building's weather barrier, provide manufacturer's cut sheets indicating the following:
 - a. Fixture power in watts.
 - b. Initial lamp lumens.
 - c. Photometric distribution data.
 - d. Dimming capability, in range of percentages.
15. **EXTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed on site, provide manufacturer's cut sheets indicating the following:
 - a. Fixture power in watts.
 - b. Initial lamp lumens.
 - c. Photometric distribution data.
 - d. Range of field adjustability, if any.
 - e. Warranty of suitability for exterior use.
16. **ALTERNATIVE TRANSPORTATION:** Provide manufacturer's cut sheets and/or shop drawings for the following items installed on site:
 - a. Bike racks, including total number of bicycle slots provided.
 - b. Signage indicating parking spaces reserved for electric or low-emitting vehicles and for carpools/vanpools, including total number of signs.
17. **WATER CONSERVING FIXTURES:** For all water consuming plumbing fixtures and fittings, provide manufacturer's cut sheets showing maximum flow rates and/or flush rates.
18. **ENERGY SAVING APPLIANCES:** Provide manufacturer's cut sheets and published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the product's rating under the U.S. EPA/DOE Energy Star program, for all of the following:
 - a. Appliances (i.e., refrigerators, dishwashers, microwave ovens, televisions, clothes washers, clothes dryers, chilled water dispensers).
 - b. Office equipment (i.e., copy machines, fax machines, plotters/printers, scanners, binding and publishing equipment).
 - c. Electronics (i.e., servers, desktop computers, computer monitor displays, laptop computers, network equipment).
 - d. Commercial food service equipment
19. **GLAZING:** For glazing in any windows, doors, storefront and window wall systems, curtainwall systems, skylights, and partitions, provide manufacturer's cut sheets indicating the following:
 - a. Glazed area.
 - b. Visible light transmittance.
 - c. Solar heat gain coefficient.
 - d. Fenestration assembly u-factor.



20. VENTILATION: Provide manufacturer's cut sheets for the following:
 - a. Carbon dioxide monitoring systems, if any, installed to measure outside air delivery.
 - b. Air filters: for detailed requirements refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS.
21. REFRIGERATION: For all refrigeration equipment, provide manufacturer's cut sheets indicating the following:
 - a. Equipment type.
 - b. Equipment life. Default values specified by the 2007 ASHRAE Applications Handbook will be used unless otherwise demonstrated by the manufacturer's guarantee and an equivalent long-term service contract.
 - c. Refrigerant type.
 - d. Refrigerant charge in pounds of refrigerant per ton of gross cooling capacity.
 - e. Tested refrigerant leakage rate, in percent per year. A default rate of 2% will be used unless otherwise demonstrated by test data.
 - f. Tested end-of-life refrigerant loss, in percent. A default rate of 10% will be used unless otherwise demonstrated by test data.

1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

- A. The LEED BUILDING Submittal information shall be assembled into one package per contract specification section(s) (or per subcontractor), and submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Incomplete or inaccurate LEED BUILDING submittals may be used as the basis for 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 shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC) or the 2003 EPA Construction General Permit, whichever is more stringent.
 2. The Plan shall be submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
 3. Detailed requirements: ESC Plan
 - a. Include the Stormwater Pollution Prevention Plan, if required.
 - b. Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.
 - c. Describe all site work that will be implemented on the project.
 - d. Provide site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, and inlet/catch basin protection.
 - e. Describe the inspection and maintenance of the ESC measures. Provide a construction schedule indicating weekly site review.
 - f. Describe reporting and documentation measures.
 4. Detailed requirements: ESC Measures



5. Submittal requirements: ESC Tracking Log
 - a. Note date of major rain events, describe damage, describe any repairs or maintenance performed, and note responsible party.
 - b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party.
 - c. Submit monthly.
6. Implementation
 - a. The Contractor shall implement the ESC Plan, coordinate the Plan with all affected trades, and designate one individual as the Erosion and Sedimentation Control Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.
 - b. The Contractor shall be responsible for the provision, maintenance, and repair of all ESC measures.
 - c. Demonstration. The Contractor shall provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
 - d. Meetings. Urgent or ongoing ESC issues shall be discussed at weekly on-site job meetings.

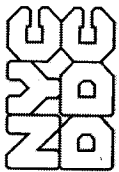
1.9 QUALITY ASSURANCE:

- A. The Contractor shall implement all LEED Action Plans, coordinate the Plans and LEED Building Submittals with all affected trades, and designate one individual as the Sustainable Construction Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of LEED activities with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. Responsibilities of Contractor's Subcontractors: The Contractor shall be responsible for his/her subcontractors complying with the LEED Action Plans and for providing required LEED documentation as required for the project.
- C. Distribution and Compilation: The Contractor shall be responsible for distributing the EBMCF and any other forms or templates required for the subcontractors to record LEED documentation. The Contractor shall also be responsible for collecting and compiling EBMCF information into packages as described in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. Meetings: Sustainable design and construction issues shall be discussed at the following meetings:
 1. Demolition kick-off meeting
 2. Construction kick-off meeting
 3. Construction kick-off meeting for LEED (independent meeting)
 4. Weekly job-site progress and coordination meetings
 5. Closeout meeting

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 13.03



**Department of
Design and
Construction**

ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM

Contractor Name: _____
 Contractor Contact: _____
 Telephone Number: _____

Project Name: _____
 Project I.D.: _____

Product/Manufacturer	Recycled Content		Regional ⁴		Rapidly Renewable ⁷		VOC content ⁸		Flooring ⁹		Wood	
	Pre-Consumer (% by wt) ²	Post-Consumer (% by wt) ³	Total % (1/2 Pre + Post)	Location & Distance to Extraction ⁵	Location & Distance to Manufacture ⁶	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: _____



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date: July 1, 2019

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**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.
- B. Adhesive: Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers.
- C. 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.
- D. 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.
- E. 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.
- F. 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.
- G. Building Interior: Everything inside a structure's weatherproofing membrane.
- H. 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).
- I. Certified Wood: See Forest Stewardship Council (FSC) Certified Wood.
- J. Clear Wood Finish: Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film.
- K. 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.



- L. 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.
- M. 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.
- N. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- O. 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).
- P. 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.
- Q. Extended Producer Responsibility: 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.
- R. Floor Coating: Opaque coating applied to flooring. Excludes industrial maintenance coatings.
- S. Forest Stewardship Council (FSC) Certified Wood: Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
- T. 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.
- U. 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.
- V. Lacquer: Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film.
- W. LEED: The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council (USGBC).
- X. 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.
- Y. 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).

- Z. 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.

- AA. 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).
 - d. Anti-Corrosive / Rust Preventative Paint: Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates.

- BB. Permanently Installed Building Product: See Product.

- CC. 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.

- DD. Product: 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.

- EE. Product-Specific Declaration: Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle-to-gate scope.

- FF. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer) or after consumer use (post-consumer). 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).
 - a. 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.
 - b. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.
 - c. "Pre-consumer" may also be referred to as "post-industrial".

- GG. 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.

- HH. 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.



- II. 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.).
- JJ. 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).
- KK. Sealant: Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints between surfaces. Includes sealant primers and caulks.
- LL. 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.
- MM. 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.
- NN. Stain: Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
- OO. 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.
- PP. 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.
- QQ. 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 ($1/2 \times \text{pre-consumer percentage} \times \text{product value} + 1 \times \text{post-consumer percentage} \times \text{product value} = \text{total recycled content value}$).
 - 2) See additional requirements for concrete 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 CO₂e;
 - ii. Depletion of the stratospheric ozone layer, in kg CFC-11;
 - iii. Acidification of land and water sources, in moles H⁺ or kg SO₂;
 - iv. Eutrophication, in kg nitrogen or kg phosphate;
 - v. Formation of tropospheric ozone, in kg NO_x 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 bioaccumulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception shall be made for titanium dioxide and, for products that are pre-tinted by the manufacturer, carbon black, which shall be less than or equal to 1% by weight of the product.
 - 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 \leq 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/



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- 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



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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 shall follow all requirements of this section. In the event of any conflict or inconsistency between this section and the Specifications regarding adhesives, sealant or sealant applications, paints and coatings, the requirements set forth in this Section shall prevail.
- C. This Section includes:
1. General Requirements
 2. References
 3. VOC Requirements for Interior Adhesives
 4. VOC Requirements for Interior Sealants
 5. VOC requirements for Interior Paints
 6. VOC requirements for Interior Coatings
 7. Submittals

1.3 RELATED SECTIONS: Include without limitation the following:

- | | | |
|----|------------------|---|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION |
| D. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| E. | Section 01 73 00 | EXECUTION |
| F. | Section 01 77 00 | CLOSEOUT PROCEDURES |
| G. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |
| H. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v3 BUILDINGS |
| I. | Section 01 81 19 | INDOOR AIR QUALITY FOR LEED BUILDINGS |

1.4 DEFINITIONS:

- A. **ADHESIVE:** Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers.
1. **Aerosol Adhesive:** Any adhesive packaged as an aerosol with a spray mechanism permanently housed in a non-refillable can designed for hand-held application without the need for ancillary equipment.
- B. **CARCINOGEN:** A chemical listed as a known, probable, reasonably anticipated, or possible human

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carcinogen by the International Agency for Research on Cancer (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA).

- C. **CLEAR WOOD FINISH:** Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film.
 - 1. **Lacquer:** Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film.
 - 2. **Sanding Sealer:** A sanding sealer that also meets the definition of a lacquer.
 - 3. **Varnish:** Clear/semi-transparent coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. May contain small amounts of pigment.
- D. **COATING:** Liquid, liquefiable, or mastic composition that is converted to a solid adherent film after application to a substrate as a thin layer; and is used for decorating, protecting, identifying or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics; and is intended for on-site application to interior or exterior surfaces of buildings. Does not include stains, clear finishes, recycled latex paint, specialty (industrial, marine or automotive) coatings or paint sold in aerosol cans.
- E. **FLOOR COATING:** Opaque coating applied to flooring. Excludes industrial maintenance coatings.
- F. **HAZARDOUS AIR POLLUTANT:** Any compound listed by the U.S. EPA in the Clean Air Act Section 112(b)(1) as a hazardous air pollutant.
- G. **MUTAGEN:** A chemical that meets the criteria for category 1, chemicals known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans, under the Harmonized System for the Classification of Chemicals Which Cause Mutations in Germ Cells (United Nations Economic Commission for Europe, Globally Harmonized System of Classification and Labeling of Chemicals).
- H. **OZONE-DEPLETING COMPOUNDS:** A compound with an ozone-depletion potential greater than 0.1 (CFC 11=1) according to the U.S. EPA list of Class I and Class II Ozone-Depleting Substances.
- I. **PAINT:** A pigmented coating. For the purposes of this specification, paint primers are considered to be paints.
 - 1. **Flat Coating or Paint:** Has a gloss of less than 15 (using an 85-degree meter) or less than 5 (using a 60-degree meter).
 - 2. **Non-Flat Coating or Paint:** Has a gloss of greater than or equal to 15 (using an 85-degree meter) or greater than or equal to 5 (using a 60-degree meter).
 - 3. **Non-Flat High-Gloss Coating or Paint:** Has a gloss of greater than or equal to 70 (using a 60-degree meter).
 - 4. **Anti-Corrosive / Rust Preventative Paint:** Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates.
- J. **PRIMER:** Coating that is formulated and recommended for one or more of the following purposes: to provide a firm bond between the substrate and a subsequent coating; to prevent a subsequent coating from being absorbed into the substrate; to prevent harm to a subsequent coating from materials in the substrate; or to provide a smooth surface for application of a subsequent coating.
- K. **REPRODUCTIVE TOXIN:** A chemical listed as a reproductive toxin (including developmental, female, and male toxins) by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. Seq.).
- L. **SANDING SEALER:** Clear/semi-transparent coating formulated to seal bare wood. Can be abraded to create a smooth surface for subsequent coatings. Does not include sanding sealers that are lacquers (see Clear Wood Finish above).
- M. **SEALANT:** Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints

VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,
SEALANTS, PAINTS AND COATINGS FOR LEED v3 BUILDINGS



between surfaces. Includes sealant primers and caulks.

- N. SHELLAC: Clear or pigmented coating formulated solely with the resinous secretions of the lac beetle, thinned with alcohol and formulated to dry by evaporation without chemical reaction. Excludes floor applications.
- O. STAIN: Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
- P. VOLATILE AROMATIC COMPOUND: Any hydrocarbon compound containing one or more 6-carbone benzene rings, and having an initial boiling point less than or equal to 280 degrees Celsius measured at standard conditions of temperature and pressure.
- Q. VOLATILE ORGANIC COMPOUND: Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.
- R. WATERPROOFING SEALER: A coating that prevents the penetration of water into porous substrates.

1.5 GENERAL REQUIREMENTS:

- A. The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED Green building rating. Specific project requirements related to this goal which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated environmental goals.

1.6 REFERENCES:

- A. Rule 1168 – “Adhesive and Sealant Applications”, amended 7 January 2005): South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
- B. Rule 1113 - “Architectural Coatings”, amended 9 July 2004: South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
- C. Green Seal Standard GS-11- “Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org
- D. Green Seal Standard GC-03- “Anti-Corrosive Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org

1.7 VOC REQUIREMENTS FOR INTERIOR ADHESIVES, SEALANTS, PAINTS AND COATINGS:

- A. GENERAL: Unless otherwise specified herein, the VOC content of all interior adhesives, sealants, paints and coatings (herein referred to as “products”) shall not be in excess of **250 grams per liter**.
- B. No product shall contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioaccumulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception shall be made for titanium dioxide and, for products that are pre-tinted by the manufacturer, carbon black, which shall be less than or equal to 1% by weight of the product.
- C. No product shall contain the following:
 - 1. methylene chloride
 - 2. 1,1,1-trichloroethane
 - 3. benzene



4. toluene
5. ethylbenzene
6. vinyl chloride
7. naphthalene
8. 1,2-dichlorobenzene
9. di (2-ethylhexyl) phthalate
10. butyl benzyl phthalate
11. di-n-butyl phthalate
12. di-n-octyl phthalate
13. diethyl phthalate
14. dimethyl phthalate
15. isophorone
16. antimony
17. cadmium
18. hexavalent chromium
19. lead
20. mercury
21. formaldehyde
22. methyl ethyl ketone
23. methyl isobutyl ketone
24. acrolein
25. acrylonitrile

D. No product shall contain more than 1.0% by weight of sum total of volatile aromatic compounds.

1.8 VOC REQUIREMENTS FOR INTERIOR ADHESIVES:

- A. The volatile organic compound (VOC) content of adhesives, adhesive bonding primers, or adhesive primers used in this project shall not exceed the limits defined in Rule 1168 – “Adhesive and Sealant Applications” of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
- C. For specified building construction related applications, the allowable VOC content is as follows:

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

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e.	Adhesive primer for plastic	550
f.	Contact Adhesive	80
g.	Special Purpose Contact Adhesive	250
h.	Structural Wood Member Adhesive	140
i.	Sheet Applied Rubber Lining Operations	850
j.	Top and Trim Adhesive	250
3.	Substrate Specific Applications:	
a.	Metal to metal	30
b.	Plastic foams	50
c.	Porous material (except wood)	50
d.	Wood	30
e.	Fiberglass	80
4.	Aerosol Adhesives:	
a.	General purpose mist spray	65% VOC's by weight
b.	General purpose web spray	55% VOC's by weight
c.	Special purpose aerosol adhesives (all types)	70% VOC's by weight

1.9 VOC REQUIREMENTS FOR INTERIOR SEALANTS:

- A. The volatile organic compound (VOC) content of sealants, or sealant primers used in this project shall not exceed the limits defined in Rule 1168 – “Adhesive and Sealant Applications” of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
- Sealants:

a.	Architectural	250
b.	Non-membrane roof	300
c.	Roadway	250
d.	Single-ply roof membrane	450
e.	Other	420
 - Sealant Primer:

a.	Architectural – Nonporous	250
b.	Architectural – Porous	775
c.	Other	750

1.10 VOC REQUIREMENTS FOR INTERIOR PAINTS:

- A. Paints and Primers: Paints and primers used in non-specialized interior applications (i.e., for wallboard, plaster, wood, metal doors and frames, etc.) shall meet the VOC limitations of the Green Seal Paint Standard GS-11, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:

1. Volatile Organic Compounds:

- a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.

Interior Paints and Primers:

Non-flat: 150 g/l

Flat: 50 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.



B. Anti-Corrosive and Anti-Rust Paints: Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates shall meet the VOC limitations of the Green Seal Paint Standard GC-03, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:

1. Volatile Organic Compounds:
 - a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.
Anti-Corrosive and Anti-Rust Paints: 250 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.

1.11 VOC REQUIREMENTS FOR INTERIOR COATINGS:

A. Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to the interior shall meet the VOC limitations defined in Rule 1113, "Architectural Coatings" of SCAQMD, of the State of California. The VOC limits defined by SCAQMD, based on 7/9/04 amendments, are as follows. VOC limits are defined in grams per liter, less water and less exempt compounds.

1. Clear Wood Finishes:
 - a. Varnish 350
 - b. Sanding Sealers 350
 - c. Lacquer 550
2. Shellac:
 - a. Clear 730
 - b. Pigmented 550
3. Stains 250
4. Floor Coatings 100
5. Waterproofing Sealers 250
6. Sanding Sealers 275
7. Other Sealers 200

The calculation of VOC shall exclude water and tinting color added at the point of sale.

1.12 SUBMITTALS:

- A. Submit Material Safety Data Sheets, for all applicable products in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings. Material Safety Data Sheets shall indicate the Volatile Organic Compound (VOC) limits of products submitted. (If an MSDS does not include a product's VOC limits, then product data sheets, manufacturer literature, or a letter of certification from the manufacturer can be submitted in addition to the MSDS to indicate the VOC limits).
- B. Submit Environmental Building Materials Certification Form (EBMCF) 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



**SECTION 01 81 19
INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS**

REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 19

PART I – GENERAL

1.1 RELATED DOCUMENTS:

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

1.2 CONSTRUCTION IAQ MANAGEMENT GOALS FOR THE PROJECT:

- A. The City of New York has determined that this Project shall minimize the detrimental impacts on Indoor Air Quality (IAQ) resulting from construction activities. Factors that contaminate indoor air, such as dust entering HVAC systems and ductwork, improper storage of materials on-site, poor housekeeping, shall be minimized.

1.3 RELATED SECTIONS:

- A. All sections of the Specifications related to interior construction, MEP systems and items affecting indoor air quality.
- B. 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.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products, including solvents in paints, coatings, adhesives and sealants, wood preservatives, composite



wood binder, and foam insulations. Not all VOC's are harmful, but many of those contained within building products contribute to the formation of smog and may irritate building occupants by their smell and/or health impact.

- D. Materials that act as "sinks" for VOC contamination: Absorptive materials, typically dry and soft materials (such as textiles, carpeting, acoustical ceiling tiles and gypsum board) that readily absorb VOC's emitted by "source" materials and release them over a prolonged period of time.
- E. Materials that act as "sources" for VOC contamination: Products with high VOC contents that emit VOC's either rapidly during application and curing (typically "wet" products, such as paints, sealants, adhesives, caulks and sealers) or over a prolonged period (typically "dry" products such as flooring coverings with plasticizers and engineered wood with formaldehyde).

1.5 REFERENCES, RESOURCES:

- A. "IAQ Guidelines for Occupied Buildings Under Construction", 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 shall not be allowed if such changes compromise the stated LEED BUILDING Performance Criteria.

1.7 CONSTRUCTION IAQ MANAGEMENT PLAN:

- A. The Contractor shall prepare a Construction IAQ Management Plan in coordination with each subcontractor and submit the Construction IAQ Management Plan to the Commissioner for approval in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. The Construction IAQ Management Plan shall meet the following criteria:
 - 1. Construction activities shall be planned to meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors' Association (SMACNA) "IAQ Guidelines for Occupied Buildings under Construction", Second Edition, 2007.
 - 2. Absorptive materials shall be protected from moisture damage when stored on-site and after installation.
 - 3. The planned operation of air handlers during construction shall 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 shall be replaced immediately prior to occupancy. Filtration media shall have a MERV of 13 as determined by ASHRAE 52.2-2007.
 - 5. A "Sequence of Finish Installation Plan" shall be developed, highlighting measures to reduce the absorption of VOCs by materials that act as "sinks".
 - 6. The use of tobacco products shall be prohibited inside the building and within 25 feet of the building entrance during construction.



7. A flush-out or air testing shall be performed.
8. Upon approval of the Plan by the Commissioner, it shall be implemented by the Contractor through the duration of the construction process, and documented in accordance with the Submittal Requirements of Sub-Section 1.8 herein.

B. 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 shall be organized in accordance with the SMACNA format, and shall address measures to be implemented in each of the five categories (including subsections). All subsections shall be listed in the Plan; items that are not applicable for this Project should be listed as such.
 - a. HVAC Protection
 - 1) Protect air handling and distribution equipment and air supply and return ducting during construction.
 - 2) All ductwork arriving on site will be sealed with plastic sheeting and stored on pallets or dunnage until installed.
 - 3) Cover and protect all exposed air inlets and outlets, openings, grilles, ducts, plenums, etc. to prevent water, moisture, dust and other contaminant intrusion.
 - 4) Apply protection immediately after ducting.
 - 5) Protect ducting runs at the end of day's work.
 - 6) Inspect temporary filtration weekly and replace as required to maintain the proper ventilation rates in the building.
 - 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 shall 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, shall be closed when not in use.
 - 7) Enforce the no-smoking job site policy.
 - c. Pathway Interruption
 - 1) Depressurize work areas to contain dust and odors.
 - 2) Pressurize occupied spaces to prevent intrusion of dust and odors.
 - 3) Erect barriers to contain construction areas.
 - 4) Relocate pollutant sources.
 - 5) Temporarily seal the building and provide 100% outside air for ventilation.
 - 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 shall be cleaned up immediately upon completion.
 - 5) Spills or excess applications of products containing solvents, or with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, must be removed immediately.
 - 6) Dust all walls prior to application of finishes.
 - 7) Vacuum all stud tracks prior to application of insulation.
 - 8) 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 shall be a regular action topic at weekly site coordination meetings. Implementation of the Plan shall be documented in the meeting minutes.
2. Protection of Materials from Moisture Damage: As part of the "Source Control" section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage shall be described. This section shall 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 shall be provided. The description shall include replacement criteria for filtration media during construction, and confirmation of filtration media replacement for all equipment immediately prior to occupancy.
 4. Sequence of Finish Installation for Materials: Where feasible, absorptive materials shall be installed after the installation of materials or finishes which have high short-term emissions of VOC's, formaldehyde, particulates, or other air-borne compounds. Absorptive materials include, but are not limited to: carpets; acoustical ceiling panels; fabric wall coverings; insulations (exposed to the airstream); upholstered furnishings; and other woven, fibrous or porous materials. Materials with high short-term emissions include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paints, wood preservatives and finishes; control and/or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.
 5. Pre-Occupancy Phase: Perform either a flush-out or air sample testing (Options 1 or 2), 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 shall be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in IEQ Prerequisite: Minimum Indoor Air Quality Performance, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space.
- 2) Commissioning can occur during flush-out, at the discretion of the Commissioning Agent, 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 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 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 shall be conducted as follows:



- i. All measurements shall be conducted prior to occupancy, but during normal occupied hours and with the building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.
 - ii. The building shall have all interior finishes installed, including but not limited to millwork, doors, paint, carpet and acoustic tiles. Non-fixed furnishings such as workstations and partitions are 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 shall be complete. 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 shall not be less than one per 25,000 sq.ft., or for each contiguous floor area, whichever is larger, and include areas with the least ventilation and greatest presumed source strength.
 - v. Air samples shall be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum 4-hour period.
 - 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 shall implement the Construction IAQ Management Plan, coordinate the 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 shall distribute copies of the Construction IAQ Management Plan in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.
 - b. Instruction: The Contractor shall provide on-site instruction of appropriate site management to all Contractor's Subcontractors.
 - c. Monitoring: The Construction IAQ Representative shall monitor the implementation of the Construction IAQ Management Plan.

1.8 SUBMITTALS:

Submit the following LEED-required records and documents in accordance with Section 01 33 00 SUBMITTAL PROCEDURES and, 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 monthly.
- B. Product cut-sheets for all filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets shall be submitted with the Contactor's or Subcontractor's 'approved' stamp as confirmation that the products are the products installed on the Project.
- C. 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 shall document the implementation of the Construction IAQ Management Plan throughout the course of the Project construction. Examples include photographs of ductwork sealing and protection, temporary ventilation measures, and conditions of on-site materials storage (to prevent moisture damage). Photographs shall include integral date stamping, and shall be submitted with brief descriptions of the Construction IAQ Management Plan measure documented, or be referenced to Project meeting minutes or similar Project documents which reference to the Construction IAQ Management Plan measure documented.
- D. A copy of the Project's Testing, Adjusting and Balancing (TAB) report, if applicable.

1.9 QUALITY ASSURANCE:

- A. The Contractor shall be responsible for preparing and implementing the Construction IAQ Management Plan and shall coordinate and incorporate the work of its subcontractors in the IAQ Management Plan. Include the Construction IAQ Management Plan requirements in contract agreements with subcontractors. Familiarize subcontractors with the plan and how it will affect their daily activities. Hold a subcontractors' orientation meeting to review the plan requirements.
- B. Responsibility of Subcontractors: Subcontractors for this Project shall be responsible to cooperate with the Contractor in the preparation and implementation of the Construction IAQ Management Plan.
- 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 accessible area.

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION 01 81 19



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date: July 1, 2019

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**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 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 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: Include without limitation the following:

- 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 shall be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor shall cooperate with the CxA and provide whatever assistance is required.
- C. Related Sections include without limitation the following:
 - 1. Section 01 10 00 SUMMARY
 - 2. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
 - 3. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
 - 4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
 - 5. Section 01 79 00 DEMONSTRATION AND OWNERS 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.
- B. 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.
- C. 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 shall develop the checklists; the Contractor shall complete them.
- D. 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.
- E. 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 shall not be an employee of the Contractor, nor shall the CxA have any interest in the Contract.
- F. 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.
- G. 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.
- H. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and Specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- I. Factory Testing: Testing of equipment on-site or at the factory, by factory personnel, with or without an owner's representative.
- J. 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 shall be performed as per the protocol written by the CxA, defining the methods, personnel, and expectations.



- K. 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.
- L. 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.
- M. 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.
- N. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.
- O. 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.
- P. 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.
- Q. 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.
- R. Sampling: Functional testing for a percentage of the total number of identical or near-identical pieces of equipment.
- S. 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.
- T. Startup: The initial starting or activating of equipment, including executing construction checklists.
- U. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.
- V. 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.
- W. 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.



- X. Test requirements: Requirements specifying what modes and functions, etc. shall 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.
- Y. 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 shall consist of, but not be limited to, representatives of the Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members Appointed by the City:
 - 1. Commissioning Authority/Agent (CxA): The designated person, company, or entity under separate Contract with the City that plans, schedules, and coordinates the Commissioning Team to implement the commissioning process.
 - 2. Representatives of the facility user and operation and maintenance personnel.
 - 3. 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 shall provide utility services required for the commissioning process.
- B. As a member of the Commissioning Team, the Contractor and subcontractor(s) shall assign representatives with expertise and authority to act on behalf of the Contractor and its subcontractor(s) and schedule them to participate in and perform Commissioning Team activities including, but not limited to, the following:
 - 1. Participate in scheduled construction-phase coordination and Commissioning Team meetings.
 - 2. Integrate and coordinate commissioning process activities with the construction schedule.
 - 3. Provide any and 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 shall be submitted prior to functional testing.
12. Provide orientation sessions for operation 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 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 a Master Equipment List.
- H. Verify air and water systems balancing by sampling, by reviewing completed reports, and by 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 10 months into the 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 shall 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 shall 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 shall 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 shall 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 shall 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 shall be provided to the CxA as requested. Such submittals shall be in compliance with Section 01 33 00 SUBMITTAL PROCEDURES.
- B. As-Built Contract Record Drawings and Operating and Maintenance Manuals relevant to commissioning shall be provided to the CxA as requested. Such submittals shall be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
- C. All demonstration and orientation submittals relevant to commissioning shall be provided to the CxA as requested. Such submittals shall be in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION.
- D. Completed Prefunctional (Installation) Checksheets shall 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 shall 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 shall ensure that all required Commissioning Team members attend.
- E. Testing Coordination: Contractor shall 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 shall 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 shall be provided by the Contractor responsible for testing. Any proprietary Vendor-specific test equipment shall 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 shall be included at no extra cost to the City and shall 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 shall 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 shall comply with the following:
 - 1. Be of sufficient quality and accuracy to test and/or measure system performance within the tolerances required
 - 2. Be calibrated at the manufacturer's recommended intervals with calibration tags permanently affixed to the instrument
 - 3. Be maintained in good repair and operating condition throughout use duration on this Project
 - 4. Be immediately recalibrated or repaired if dropped and/or damaged in any way during 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 shall, 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, shall 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 shall evolve and expand as the Project progresses. The Commissioning Plan shall 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 shall 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 shall 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 shall 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 shall be placed on checkout procedures that shall conclusively determine actual system performance and compliance with the OPR and BoD.
- C. The Contractor and appropriate Vendor(s) shall be informed of what tests are to be performed and the expected results. The Commissioning Plan shall address the test requirements and be distributed to all parties involved with that system.
- D. Prior to Functional Testing, the Contractor shall provide the following:
 - 1. Contractor shall 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 shall 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 shall 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 shall 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 shall be performed by the Contractor and Vendor(s) with oversight by the CxA. The CxA shall witness, verify, and document these tests.
 - 1. Functional Performance Tests shall 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 shall 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 shall provide retesting at no additional cost to the City.
 - 4. After testing, Contractor shall return settings to normal operating conditions.

3.4 OPERATION & MAINTENANCE MANUALS

- A. General
 - 1. The CxA shall review the Operation & Maintenance manuals provided by the Contractor for completeness of the document. The review process shall verify that Operation & Maintenance instructions meet Specifications and are included for all commissioned equipment furnished by the Contractor.
 - 2. Published literature shall be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.
 - 3. The Contractor shall incorporate the standard technical literature into system specific formats for this facility as designed and as actually installed. The resulting Operation & Maintenance information shall be system specific, concise, to the point and tailored specifically to this facility. The CxA shall review these documents as necessary for final corrections by the Contractor.
 - 4. Contractor shall 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 shall 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 shall prepare and deliver these documents with inputs from the Contractor. The Contractor shall provide all required documents to the CxA, through the Commissioner. The required documents shall 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 shall schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations shall be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio orientation aids onsite with equipment.
- B. The equipment vendors shall provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.
- C. The Contractor shall 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 unsuitable 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 10 months into the 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 shall review the as built Contract Documents to verify incorporation of both design changes and as built construction details. Discrepancies noted shall be corrected by the appropriate party.

END OF SECTION 01 91 13



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 **OPR 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 shall 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.
- B. Approval: Acceptance that a material or system has been properly installed and is functioning in tested modes according to the Contract Documents.
- C. Building Enclosure Commissioning Agent (BECA): Consultant under separate contract with the City of New York to provide BECx Services for this Project. BECA directs and coordinates day-to-day BECx commissioning activities.
- D. 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.
- E. 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.
- F. Commissioning Agent (CxA): Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
- G. Commissioning Plan: Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
- H. Deficiency: Condition of a building enclosure material or system that is not in compliance with Contract Documents (that is, does not perform properly or is not complying with design intent).
- I. Design Consultant: Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition.
- J. Functional Performance Test (FPT): Test of performance of building enclosure materials and systems. Systems are tested under various simulated environmental conditions, such as air leakage under pressure differential and water leakage under pressure differential with water spray.
- K. 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).
- L. 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 shall 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 shall contract services of the BECA through a separate contract. The BECA shall direct and coordinate commissioning activities and report to the Commissioner. All members of the Building Enclosure Commissioning Team shall cooperate to fulfill contracted responsibilities and objectives of the Contract Documents.
- C. Scheduling: BECA shall work with Building Enclosure Commissioning Team to establish required commissioning activities to incorporate in preliminary commissioning schedule. The Contractor shall 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 shall provide documentation required for commissioning work in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. At minimum, documentation shall 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 shall 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 shall 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 shall 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 shall 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 document 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, as needed per the Contract Documents:

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 shall 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 shall be held periodically as determined by the Commissioner and recommended by BECA.
- B. Discussions held in BECx meetings shall include, but not be limited to, system/materials, mock-up/field, progress, scheduling, testing, documentation, deficiencies, and problem resolution.
- C. The Contractor shall attend BECx meetings, and shall ensure the attendance of required subcontractors, as requested.

3.4 REPORTING

- A. BECA shall provide status reports to the Commissioner. The Commissioner will provide such status reports to the Contractor, CxA, Design Consultant, and other entities as needed.
- B. BECA shall submit non-compliance and deficiency reports to Commissioner. The Commissioner shall provide such reports to the Contractor, CxA, Design Consultant, and other entities as needed.
- C. BECA shall provide a final summary report to Commissioner and CxA.

3.5 MOCK-UP AND FINAL CONSTRUCTION

- A. Contractor shall verify completion of all assemblies compliant with Contract Documents and deficiency log items prior to Functional Performance Testing or concealment of functional performance layers within the building enclosure.

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 shall 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 shall schedule Functional Performance Tests with Commissioning Team. BECA shall witness and document functional testing of equipment and systems. BECA, as retained by the Contractor, shall execute tests under direction of BECA.
2. Successful completion of mock-up functional performance testing shall 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 shall witness and document results of FPT.

B. Non-Conformance

1. BECA shall record results of functional testing. Deficiency or non-conformance issues shall be noted and reported to the Commissioner. The Commissioner shall 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 discretion of the Commissioner and recommended by the BECA. In such cases, deficiency and resolution shall be documented.
3. Every effort shall 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 Contractors response and intentions. Finding a deficiency shall not end the testing process.
 - b) BECA submits deficiency report to the Commissioner. The Commissioner shall 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 shall 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 shall 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 shall contain evaluation regarding:
 - a) Conformance to specifications and design intent
 - b) Material/system installation
 - c) Functional performance
2. All outstanding non-compliance items shall be specifically listed.
3. Recommendations for improvement to system or operations, future actions, etc. shall also be listed.

END OF SECTION 01 91 15



**Department of
Design and
Construction**

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date: July 1, 2019

(No Text on This Page)

FMS ID: PV274CHLL



Department of Design and Construction

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

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

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

CONTRACT NO. 1 HVAC WORK

Chiller Replacement and BMS Upgrade

LOCATION: 47-01 111th Street
BOROUGH: Queens, 11368
CITY OF NEW YORK

CDE AIR CONDITIONING CO.

Contractor

Dated September 4th, 2020

Approved as to Form
Certified as to Legal Authority

[Handwritten Signature]
Acting Corporation Counsel

cc 12/19/19

Dated December 19, 2019

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20____





**Department of
Design and
Construction**

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

30-30 THOMSON AVENUE
TELEPHONE (718) 391-1000

LONG ISLAND CITY, NEW YORK 11101-3045
WEBSITE www.nyc.gov/buildnyc

Contract for Furnishing all Labor and Material Necessary

Contractor

Dated _____, 20____

Approved as to Form
Certified as to Legal Authority

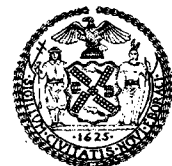
Acting Corporation Counsel

Dated _____, 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20____





**Department of
Design and
Construction**

PROJECT ID:

PV274CHLL

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

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

VOLUME 3 OF 3

**ADDENDUM TO THE GENERAL
CONDITIONS**

SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

**Chiller Replacement and BMS
Upgrade**

**LOCATION:
BOROUGH:
CITY OF NEW YORK**

**47-01 111th Street
Queens, 11368**

CONTRACT NO. 1

HVAC WORK

Department of Cultural Affairs

WSP Engineers

Date: November 15, 2019



20-029



**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 #: PV274CHLL

PROJECT NAME: New York Hall of Science – Chiller Replacement

PROJECT DESCRIPTION: This project consists of a chiller system replacement at the museum. As a result of the HVAC upgrades, the related controls, electrical and plumbing systems will be upgraded to support.

PROJECT LOCATION: 47-01 111th St.

BOROUGH: Queens

CITY OF NEW YORK

ZIP CODE: 11368

COMMUNITY BOARD #: 4

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.

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

February 14, 2020

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV274CHLL

CHILLER REPLACEMENT AND BMS UPGRADE


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. **Bidders Questions and Responses to Questions:**
See Attachment A.
2. **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, by email at CSB_projectinquiries@ddc.nyc.gov or by fax at (718) 391-2627.

FOR 

Thomas Foley
Deputy Commissioner
Public Buildings/Civic Structures

C.R.E. AIR CONDITIONING CO., INC.

Name of Bidder

By: 

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

February 21, 2020

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV274CHLL

CHILLER REPLACEMENT AND BMS UPGRADE

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 February 20, 2020, at 2:00 pm is rescheduled to February 25, 2020 at 2:00 pm.**

Contract #1 – HVAC WORK

2. **Bidders Questions and Responses to Questions:**
See Attachment A.

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

If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-1041, by email at CSB_projectinquiries@ddc.nyc.gov or by fax at (718) 391-2627.



Thomas Foley
Deputy Commissioner
Public Buildings/Civic Structures

C.D.E. Air Conditioning Co., Inc.
Name of Bidder

By: 

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.

IV. PROJECT MANAGEMENT

- DDC shall publicly bid and enter into all contracts for the Project. DDC shall manage the Project using its own personnel.
- DDC shall publicly bid and enter into all contracts for the Project. A Construction Management firm (the "CM") hired by DDC shall manage the Project. The Contractor is advised that the CM shall serve as the representative of the Commissioner at the site and shall, subject to review by the Commissioner, be responsible for the inspection, management, coordination and administration of the required construction work, as delineated in the article of the Standard Construction Contract entitled "The Resident Engineer".

V. CONTRACTS FOR THE PROJECT

The Project consists of a single contract, the Contract for General Construction Work. The Contractor for General Construction Work is responsible for the performance of all required work for the Project as set forth in the Contract Documents (General Conditions, Drawings and Specifications), including all responsibilities and obligations assigned to separate Contractors for the following subdivisions of the work: Plumbing Work, HVAC Work, and Electrical Work. All responsibilities and obligations in the Contract Documents assigned to separate Contractors for such subdivisions of the work are the responsibility of the Contractor for General Construction Work.

VI. SCHEDULES

The Contractor is advised that Schedules A through F are attached to, and incorporated as part of, this Addendum to the General Conditions. These schedules contain important information that is specific to this Project. The Contractor is advised to carefully review these schedules.

VII. APPLICABILITY OF SECTIONS/SUB-SECTIONS AND AMENDED SUB-SECTIONS

The Contractor is advised that various Sections/Sub-Sections in the General Conditions may not apply to this Project or may apply as amended. Such Sections/Sub-Sections advise the Contractor to "Refer to the Addendum for the applicability of this Section/Sub-Section." Such Sections/Sub-Sections are set forth below. A check mark indicates whether the Section/Sub-Section (1) applies to the Project, (2) does not apply to the Project, or (3) applies to the Project as amended. If no box is checked, the Section/Sub-Section, as set forth in the General Conditions, applies to the Project. Amended Sections/Sub-Sections, if any, are set forth following this list of Sections.

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 1000	1.4 (B)	Scope and Intent / LEED		X	
	1.4(C)	Scope and Intent / Commissioning	X		
01 3233		Photographic Documentation	X		
01 3300	1.7 (A-D)	LEED Submittals		X	
01 3503		General Mechanical Requirements	X		
01 3506	3.2 (A-B)	Electrical Conduit System Including Boxes (Pull, Junction and Outlet)	X		
	3.3 (A-E)	Electrical Wiring Devices	X		
	3.4 (A-I)	Electrical Conductors and Terminations	X		
	3.5 (A-B)	Circuit Protective Devices	X		
	3.6 (A-J)	Distribution Centers	X		
	3.7 (A-I)	Motors	X		
	3.8 (A-I)	Motor Control Equipment	X		
01 3591		Historic Treatment Procedures		X	
01 5000	3.2 (A)	Temporary Water Facilities / Temporary Water		X	
	3.2 (B)	Temporary Water Facilities / Temporary Water – Work in Existing Facilities	X		
	3.3 (B)	Temporary Sanitary Facilities / Self-Contained Toilet Units		X	
	3.3 (C)	Temporary Sanitary Facilities / Existing Toilets	X		
	3.4 (B) 1	Temporary Power, Lighting, and Site Lighting / Connection to Utility Lines	X		
	3.4 (B) 2	Temporary Power, Lighting, and Site Lighting / Connection to Existing Electrical Power Service	X		

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 5000	3.4 (B) 3	Temporary Power, Lighting, and Site Lighting / Electrical Generator Power Service		X	
	3.4 (D)	Temporary Power, Lighting, and Site Lighting / Temporary Lighting		X	
	3.4 (E)	Temporary Power, Lighting, and Site Lighting / Site Security Lighting (for New Construction Only)		X	
	3.5 (A-J)	Temporary Heat	X		
	3.8 (A)	DDC Field Office / Office Space in Existing Building	X		
	3.8 (B)	DDC Field Office / DDC Field Office Trailer		X	
	3.8 (B-3a)	DDC Field Office / DDC Managed Field Office Trailer		X	
	3.8 (B-3b)	DDC Field Office / CM Managed Field Office Trailer		X	
	3.8 (D)	DDC Field Office / Additional Equipment for the DDC Field Office	X		
	3.13(A-D)	Work Fence Enclosure		X	
	3.17(B)	Project Rendering		X	
	3.18 (A-C)	Security Guards / Fire Guards on Site		X	
01 5411	3.1 (A-J)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Up To and Including 15 Stories		X	
	3.2 (A-M)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Over 15 Stories		X	
	3.3 (A-E)	Temporary Use, Operation and Maintenance of Elevators During Construction for Existing Buildings		X	
01 7300	3.3 (A-I)	Surveys		X	
	3.4 (A-B)	Borings		X	
	3.12 (A-D)	Sleeves and Hangers	X		
	3.13 (A)	Sleeve and Penetration Drawings	X		
	3.15 (A)	Location of Partitions		X	
01 7419	1.5 (C)	Waste Management Performance Requirements / LEED Certification		X	
01 7900		Demonstration and Owner's Pre-Acceptance Orientation	X		
01 8113		Sustainable Design Requirements for LEED Buildings		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 Buildings		X	
01 8119		Indoor Air Quality Requirements for LEED Buildings		X	
01 9113		General Commissioning Requirements	X		
01 9115		General Commissioning Requirements for Building Enclosure			

AMENDED SECTIONS/SUB-SECTIONS

The Contractor is advised that the amended Sub-Sections set forth below are included in the General Conditions and apply to the Project.

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.

Contractor Limitations to site access & construction Conditions:

The Contractor's hours of operation during construction on the Administration/Locker room portion of the building is from 3:00pm – 12:00am.

Contractor to provide temporary protection, roof deck, vapor barrier, lighting, dust protection and all necessary items to ensure that locker room in the Administration is operation during the daytime hours 4:00am – 2:00pm.

Contractor to provide dust mitigation and protection during all phases of construction.

Phasing:

1. The facility will be occupied during construction.
2. Work at the facility shall be phased so that the facility is operational and accessible at all times with no interruption to service while replacements are under construction. Sequence the work in phases per building area as shown on the contract drawing plan.
3. The Contractor shall submit a construction phasing plan for approval by the Commissioner before the commencement of work.
4. The Contractor shall coordinate the Contractor's phasing plan with the Commissioner and Building Management to maintain continuous facility operation.
5. Contractor shall provide all necessary safety barriers, enclosures, fire watch, etc. and as further stipulated in the Contract between the City and the Contractor and the General Conditions to the Contract.
6. The contractor shall be responsible to maintain the operation of the building, including providing necessary repairs, at all times for a 24 hour period during construction activities. In addition, upon completion of each phase, the contractor will be responsible for interim maintenance until Substantial Completion.

VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

NOT USED

IX. REVISIONS: SPECIFICATIONS AND CONTRACT DRAWINGS

The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

- (1) Owner: Wherever the term "Owner" is used in the Specifications and/or the Contract Drawings, such term shall mean the City of New York.
- (2) Other Entities: In the event any entity other than the City of New York is referred to or named as the "Owner" in the Specifications and/or the Contract Drawings, the name of such other entity is deemed deleted and replaced with the "City of New York".
- (3) Architect / Engineer: Wherever the words "Architect", "Engineer", "Architect / Engineer" or "Architect and/or Engineer" are used in the Specifications and/or the Contract Drawings, such words are deemed deleted and replaced with the word "Commissioner".
- (4) Products / Manufacturers: Wherever the Specifications and/or the Contract Drawings require the contractor to provide a particular product (i.e., material and/or equipment) from a designated manufacturer and/or vendor, the term "or approved equal" is deemed inserted, even if only one product and/or manufacturer is specified, except as otherwise provided below.
 - (a) Proprietary Items: If the Bid Booklet contains a Notice which identifies a particular product from a designated manufacturer as a "Proprietary Item", the Contractor shall be required to provide such specified product. In such case, no substitution or "approved equal" will be permitted.
- (5) Special Experience Requirements: Special Experience Requirements for the Project, if any, are set forth in the Bid Booklet. Special Experience Requirements may apply to contractors, subcontractors, installers, manufacturers and/or suppliers. If the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth in the Bid Booklet, such Special Experience Requirement is deemed deleted, except as otherwise provided below.
 - (a) Any Special Experience Requirement that provides that the entity performing the work or supplying the material must have more than three (3) years of experience, is revised to provide that the entity performing the work or supplying the material must have three (3) years of experience, except as described in paragraph (b) below.
 - (b) Any Special Experience Requirement that pertains to the abatement of hazardous materials shall not be subject to the deletion and/or revision set forth above. Such Special Experience Requirement shall remain in full force and effect.
 - (c) Any Special Experience Requirement that provides that the entity performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such entity must be properly trained for the specified work.
 - (d) Any Special Experience Requirement that provides that the individual workers performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such individual workers must be properly trained for the specified work.
- (6) Alternate Bids: If the agency is requesting the submission of Alternate Bids, a Notice regarding such Alternate Bids is set forth in the Bid Booklet. In the event of any conflict or inconsistency between (1) the Notice regarding Alternate Bids set forth in the Bid Booklet and (2) a provision in the Specifications and/or the Contract Drawings regarding Alternate Bids, the Notice set forth in the Bid Booklet shall prevail. If the agency is not requesting the submission of Alternate Bids, as indicated by the absence of a Notice in the Bid Booklet, and the Specifications and/or the Contract Drawings contain any provision regarding Alternate Bids, such provision is deemed deleted.
- (7) Contractor Retained Engineer: If the Specifications and/or the Contract Drawings require the Contractor to retain an Engineer to provide engineering services for the Project, the following sentence is deemed inserted: "Such Engineer must be a Professional Engineer, licensed in the State of New York."

- (8) **LEED Related Provisions:** If the Specifications and/or the Contract Drawings require the Contractor to purchase FSC certified wood, rapidly renewable materials, or materials within 500 miles, such provisions are deemed deleted and replaced with the requirement that if the contractor has purchased FSC certified wood, rapidly renewable materials, or materials within 500 miles, the contractor shall submit such forms or documentation as may be required by the City in order for the USGBC to certify that the Project qualifies for the related LEED credit(s).
- (9) **Guarantees:** Requirements for Guarantees and Maintenance are set forth in Schedule B, which is included in the Addendum to the General Conditions. In the event of any conflict or inconsistency between (1) a guarantee and/or maintenance requirement set forth in the Specifications and/or the Contract Drawings and (2) a guarantee and/or maintenance requirement set forth in Schedule B, the guarantee and/or maintenance requirement set forth in Schedule B shall prevail.
- (10) **Warranties:** Requirements for Warranties are set forth in Schedule B, which is included in the Addendum to the General Conditions.
- (a) In the event of any conflict or inconsistency between (1) a warranty requirement set forth in the Specifications and/or the Contract Drawings and (2) a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall prevail.
- (b) In the event a warranty requirement set forth in the Specifications and/or the Contract Drawings is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications and/or the Contract Drawings, shall remain in full force and effect.
- (c) In the event a warranty requirement for a particular item of material or equipment is omitted from Schedule B, as well as from the Specifications or the Contract Drawings, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.
- (11) **Exculpatory Provisions:** In the event the Specifications and/or the Contract Drawings contain any provision whereby the consultant and/or any of its officers, employees or agents, including subconsultants, is absolved of responsibility for any act or omission, such provision is deemed deleted.
- (12) **Insurance:** Provisions regarding insurance coverage the Contractor is required to provide are set forth in Article 22 of the City of New York Standard Construction Contract and Schedule A, which is included in the Addendum to the General Conditions. In the event the Specifications and/or the Contract Drawings contain any provision regarding insurance requirements, such provision is deemed deleted.
- (13) **Indemnification:** Provisions regarding indemnification are set forth in Articles 7, 12, 22 and 57 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding indemnification, such provision is deemed deleted.
- (14) **Dispute Resolution:** Provisions regarding dispute resolution are set forth in Article 27 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding dispute resolution, such provision is deemed deleted.
- (15) **Payment to Other Entities:** In the event the Specifications and/or the Contract Drawings contain any provision which requires the Contractor to make payments to an entity other than a subcontractor and/or supplier providing services and/or material for the project, such provision is deemed deleted.
- (16) **General Conditions:** In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the General Conditions, the General Conditions shall prevail.
- (17) **Standard Construction Contract:** In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the City of New York Standard Construction Contract, the City of New York Standard Construction Contract shall prevail.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)
PART I - Contract Requirements

Various Articles of the Contract refer to requirements which are set forth in Schedule A of the General Conditions. The Schedule set forth below specifies the following: (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the contract.

REFERENCE	ITEM	REQUIREMENTS	CONTRACT #1
Information For Bidders	Bid Security		See Attachment 1 – Bid Information in the Bid Booklet
Information For Bidders	Performance and Payment Bonds		See Attachment 1- Bid Information in the Bid Booklet
Article 14 Contract	Time of Substantial Completion	Consecutive Calendar Days	540 CCD
Article 15 Contract	Liquidated Damages	For each consecutive calendar day over completion time	\$600
Article 17 Contract	Sub-Contracts	Not to exceed Percent of Contract Price	60%
Article 21 Contract	Retainage	Percent of Voucher	If 100% bonds are required 5% If 100% bonds are not required, and Contract Price is \$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: <u>2</u>
Article 75 Contract	Compensation to be Paid to Contractor		Amount for which the Contract was Awarded: <u>two million six hundred eight thousand seven hundred fifty-four</u> Dollars (\$ <u>2,608,754.00</u>)
Article 79 Contract	MWBE Program		See MWBE Utilization Plan in the Bid Booklet

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions

Note: All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:

- For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;
- Policy limits consistent with the requirements listed below;
- Additional insureds or loss payees consistent with the requirements listed below; and
- The number assigned to the Contract by the City (in the "Description of Operations" field).

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<p>■ Commercial General Liability Art. 22.1.1</p>	<p>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."</p> <p>The minimum limits shall be \$1,000,000.00 per occurrence and \$2,000,000.00 per project aggregate applicable to this Contract.</p> <p>Additional Insureds:</p> <ol style="list-style-type: none"> 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. New York Hall of Science
<p>■ Workers' Compensation Art. 22.1.2</p> <p>■ Disability Benefits Insurance Art. 22.1.2</p> <p>■ Employers' Liability Art. 22.1.2</p>	<p>Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction.</p> <p>Note: The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3,</p>

<input type="checkbox"/> Jones Act	Art. 22.1.3	(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.
<input type="checkbox"/> U.S. Longshoremen's and Harbor Workers Compensation Act	Art. 22.1.3	Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. law.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input checked="" type="checkbox"/> Builders' Risk Art. 22.1.4	100 % of total value of Work Contractor the Named Insured; the City both an Additional Insured and one of the loss payees as its interests may appear. If the Work does not involve construction of a new building or gut renovation work, the Contractor may provide an installation floater in lieu of Builders Risk insurance. Note: Builders Risk Insurance may terminate upon Substantial Completion of the Work in its entirety.
<input checked="" type="checkbox"/> Commercial Auto Liability Art. 22.1.5	\$1,000,000.00 per accident combined single limit If vehicles are used for transporting hazardous materials, the Contractor shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90
<input type="checkbox"/> Contractor's Pollution Liability Art. 22.1.6	\$_____ per occurrence \$_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Protection and Indemnity Art. 22.1.7(a)	\$_____ per occurrence \$_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input type="checkbox"/> Hull and Machinery Insurance Art. 22.1.7(b)	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Pollution Liability Art. 22.1.7(c)	\$ _____ each occurrence Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 <input type="checkbox"/> Ship Repairers Legal Liability	\$ _____ each occurrence
[OTHER] Art. 22.1.8 <input type="checkbox"/> Collision Liability/Towers Liability	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 <input type="checkbox"/> Railroad Protective Liability	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)

Insurance indicated by a blackened box (■) or by (X) in the to left will be required under this contract.

<p>[OTHER] Art. 22.1.8</p> <p>■ Asbestos Liability _____</p>	<p>Only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>\$1,000,000 each occurrence, \$2,000,000 aggregate (Combined Single Limit); only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>Additional Insureds:</p> <ol style="list-style-type: none"> 1. City of New York, including its officials and employees, and consultants. 2. New York Hall of Science
<p>[OTHER] Art. 22.1.8</p> <p>□ Boiler Insurance _____</p>	<p>\$200,000</p>
<p>[OTHER] Art. 22.1.8</p> <p>■ Professional Liability</p> <p>In the event any section of the Specifications requires the Contractor to engage a Professional Engineer to provide design and/or engineering services, the Engineer engaged by the Contractor, as well as any sub consultant(s) performing professional services, shall provide Professional Liability Insurance.</p>	<p>\$1,000,000 per occurrence</p> <p>The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of \$1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Agreement arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer.</p> <p>Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.</p>

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART III. Certificates of Insurance

All certificates of insurance (except certificates of insurance solely evidencing Workers' Compensation Insurance, Employer's Liability Insurance, and/or Disability Benefits Insurance) must be accompanied by one of the following:

- (1) the Certification by Insurance Broker or Agent on the following page setting forth the required information and signatures;

-- OR --

- (2) copies of all policies as certified by an authorized representative of the issuing insurance carrier that are referenced in such certificate of insurance. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART IV. Address of Commissioner

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth below or, in the absence of such address, to the **Commissioner's** address as provided elsewhere in this **Contract**.

ACCO's Office, Insurance Unit

30-30 Thomson Avenue, 4th Floor

Long Island City, New York 11101

SCHEDULE B

Guarantees and Warranties

(Reference: Section 01 7839, Article 2.7 of the DDC Standard General Conditions)

GUARANTY FROM CONTRACTOR

(1) **Contractor's Guaranty Obligation:** The Contractor shall promptly repair, replace, restore or rebuild, as the Commissioner may determine, any finished Work in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of Substantial Completion (or use and occupancy in accordance with the Contract), except for the areas of Work set forth below:

- Roofing, Waterproofing, and Joint Sealant Work. For these types of work, the guarantee period shall be (2) two years.
- Trees and/or Plant Material. For trees and/or plant material furnished and installed, the guarantee period shall be (2) two years. During the guarantee period, the Contractor shall provide all maintenance services set forth in the Specifications.

(2) **Guaranty Period:** The obligation of the Contractor, and its Surety under the Performance Bond, is limited to the period(s) of time specified above.

(3) **Other Provisions Deemed Deleted:** In the event the Specifications and/or the Contract Drawings contain any provisions regarding guaranty requirements, such provisions are deemed deleted and replaced with the guaranty requirements set forth in this Schedule B.

WARRANTY FROM MANUFACTURER

(1) **Contractor's Obligation to Provide Warranties:** The items of material and/or equipment for which manufacturer warranties are required are listed below. For each item of material and/or equipment listed below, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth below and will be replaced or repaired within such specified period. The Contractor shall deliver all required warranties to the Commissioner.

(2) **Required Warranties:**

Specification Number	Material or Equipment	Warranty Period
087100	Door Hardware	3 years
230513	Electric Motors	1 year
230923	Building Management and Control System	1 year
233313	Dampers	1 year
235510	Refrigeration Machines	5 years
237305	Fans	1 year
238500	Variable Frequency Controllers	1 year
238600	Electric Motor Controllers	5 years
265000	Luminaires and Accessories - Fixtures	1 year
265000	Luminaires and Accessories - Ballasts	2 year
265000	Luminaires and Accessories - Solid State Lighting	5 year
265000	Luminaires and Accessories - LED Battery	5 year
265000	Luminaires and Accessories - LED Drivers	5 year
265000	Luminaires and Accessories - Fluorescent Battery	5 year
265000	Luminaires and Accessories - LED Boards	5 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.

ARCHITECTURAL DRAWINGS

GN-101.00 GENERAL NOTES
DM-101.00 REMOVALS BASEMENT PART PLAN
DM-801.00 REMOVALS BASEMENT REFLECTED CEILING PART PLAN
A-101.00 BASEMENT PART PLAN - NEW WORK
A-701.00 DOOR DETAIL, PARTITION DETAIL, & CEILING DETAIL
A-801.00 BASEMENT PART REFLECTED CEILING PLAN

ENERGY CODE COMPLIANCE DRAWINGS

EN-001.00 MECHANICAL ENERGY CODE COMPLIANCE SHEET 1
EN-002.00 MECHANICAL ENERGY CODE COMPLIANCE SHEET 2

MECHANICAL DRAWINGS

M-001.00 MECHANICAL DRAWING LIST, SCOPE OF WORK AND NOTES
M-002.00 MECHANICAL LEGEND AND ABBREVIATIONS
M-100.00 MECHANICAL BASEMENT - LOWER LEVEL - DEMOLITION PLAN - PHASE 1
M-101.00 MECHANICAL BASEMENT - MEZZANINE - DEMOLITION PLAN - PHASE 1
M-102.00 MECHANICAL BASEMENT - LOWER LEVEL - DEMOLITION PLAN - PHASE 2
M-200.00 MECHANICAL BASEMENT - LOWER LEVEL - NEW WORK - PHASE 1
M-201.00 MECHANICAL BASEMENT - MEZZANINE - NEW WORK - PHASE 1
M-202.00 MECHANICAL BASEMENT - LOWER LEVEL - NEW WORK - PHASE 2
M-400.00 MECHANICAL SECTIONS
M-500.00 MECHANICAL WATER RISER DIAGRAM
M-600.00 MECHANICAL DETAILS SHEET 1
M-601.00 MECHANICAL DETAILS SHEET 2
M-700.00 MECHANICAL SCHEDULES
M-800.00 MECHANICAL BMS PNEUMATIC CONTROLS UPGRADE PLAN
M-801.00 MECHANICAL CONTROLS SHEET 1
M-802.00 MECHANICAL CONTROLS SHEET 2

ELECTRICAL DRAWINGS

E-001.00 ELECTRICAL DRAWING LIST, SCOPE OF WORK, AND LEGEND
E-100.00 ELECTRICAL BASEMENT - DEMOLITION WORK
E-200.00 ELECTRICAL BASEMENT - NEW WORK PLAN
E-700.00 ELECTRICAL DETAILS

PLUMBING DRAWINGS

P-001.00 PLUMBING DRAWING LIST, SCOPE OF WORK, AND NOTES

SCHEDULE D

Electrical Motor Control Equipment

(Reference: 01 3506, Article 3.8 of the DDC Standard General Conditions)

Requirements for electrical motor equipment may be included in one or more sections of the Specifications for the Contract for the Project. Schedule D set forth below delineates specific information for electrical motor control equipment. In the event of any conflict between the Specifications and this Schedule D, Schedule D shall take precedence; provided, however, in the event of an omission from Schedule D (i.e., Schedule D omits either a reference to or information concerning electrical motor equipment which is set forth in the Specifications), such omission from Schedule D shall have no effect and the Contractor's obligation with respect to the electrical motor control equipment, as set forth in the Specifications, shall remain in full force and effect.

DB Disconnect Circuit Breaker (Switch)	P Pilot Light	BG Break Glass Station
TS Thermal Switch	F Firestat	HOA Hand-Off Auto.
MS Magnetic Starter	T Thermostat	PB Push Button Station
CMS Comb. Mag. Starter	AL Alternator	RO Remote "off"

Equip. Ident.	Location	# of Units	HP or KW	Volts and Phase	Control Type: See legend above	Remarks:
MUWP-1	Mechanical Room	1	2 HP	208/3	CMS	
CH-1	Mechanical Room	1	191 KW	208/3	CMS	
CH-2	Mechanical Room	1	191 KW	208/3	CMS	
CHWP-1	Mechanical Room	1	30 HP	208/3	CMS	
CHWP-2	Mechanical Room	1	30 HP	208/3	CMS	
CHWP-3	Mechanical Room	1	30 HP	208/3	CMS	
CHWP-4	Mechanical Room	1	30 HP	208/3	CMS	
CWP-1	Mechanical Room	1	30 HP	208/3	CMS	
CWP-2	Mechanical Room	1	30 HP	208/3	CMS	
CWP-3	Mechanical Room	1	30 HP	208/3	CMS	
CWP-4	Mechanical Room	1	30 HP	208/3	CMS	
EF-1	Mechanical Room	1	.75 HP	208/3	CMS	

SCHEDULE E

Separation of Trades

NOT USED FOR SINGLE CONTRACTS

231113	Sheetmetal, Ductwork and Accessories	X	X	X																
232123	Pumps	X	X				8 WKS	X												
232500	Pipe Cleaning and Chemical Water Treatment	X	X																	
232600	Water Specialities	X	X																	
232700	Water Filters and Cleaners	X	X																	
233313	Dampers	X						X												
233610	Air Outlets Inlets	X	X																	
235210	Piping and Accessories	X	X					X												
235510	Refrigeration Machines (Water Cooled)	X	X																	
237305	Fans	X	X																	
238500	Variable Frequency Controllers	X						X												
238600	Electric Motor Controllers	X						X												
239000	Commissioning for HVAC	X	X																	
260270	Temp Lighting and Power Equipment	X	X																	
260280	Equipment Connections and Coordination	X	X																	
260519	600 Volt Wire and Cable	X																		
260533	Raceways and Boxes	X																		
260553	Identification of Electrical	X	X																	



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DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION

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SECTION

- 08 11 13 Hollow Metal Doors and Frames
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DIVISION 9 - FINISHES

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23 05 13	Electric Motors
23 05 16	Expansion Fittings and Loops for HVAC Piping
23 05 19	Meters and Gauges for HVAC Piping and Ductwork
23 05 23	Valves
23 05 29	Hangers, Anchors and Supports
23 05 40	Acoustics
23 05 48	Vibration Isolation
23 05 53	Systems Identification
23 05 93	Testing, Adjusting and Balancing
23 07 00	Insulation
23 09 00	Instruments
23 09 23	Building Management and Control System (BMCS)
23 11 13	Sheet Metal, Ductwork and Accessories
23 21 23	Pumps
23 25 00	Pipe Cleaning and Chemical Water Treatment
23 26 00	Water Specialties
23 27 00	Water Filters and Cleaners
23 33 13	Dampers
23 36 10	Air Outlets and Inlets
23 52 10	Piping and Accessories
23 55 00	Refrigeration Machines (Water Cooled)
23 73 05	Fans
23 85 00	Variable Frequency Controllers
23 86 00	Electric Motor Controllers
23 90 00	Commissioning for HVAC Systems

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26 02 70	Temporary Lighting and Power
26 02 80	Equipment Connections and Coordination
26 05 19	600 Volt Wire and Cable
26 05 33	Raceways and Boxes
26 05 53	Identification for Electrical Systems
26 24 16	Panelboards
26 27 26	Wiring Devices
26 28 13	Fuses (600 V and Less)
26 28 16	Disconnect Switches
26 29 13	Installation of Individual Motor Controllers
26 50 00	Luminaires and Accessories
26 60 00	Commissioning for Electrical Systems

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CONTRACT # 1
HVAC WORK



**SECTION 02 41 91
SELECTIVE DEMOLITION, REMOVALS, AND SALVAGE**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes all labor, materials, equipment, and services necessary to complete the work of selective demolition, removals, and salvage as shown on the Drawings, specified herein, and as required by conditions and NYC Department of Buildings, including, but not limited to, the following:
1. Demolition and removal of selected portions of buildings or structures.
 2. Repair procedures for selective demolition operations.

1.3 DEFINITIONS

- A. Selective Demolition: Carefully demolish existing construction and legally dispose of removed elements and materials off-site.
- B. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- C. Remove and Salvage: Detach items from existing construction and store them for restoration and reinstallation.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain City of New York's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".



- B. Regulatory Requirements: Comply with NYC Department of Environmental Protection regulations before beginning selective demolition, removals, and salvage. Comply with hauling and disposal regulations of NYC Department of Buildings.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.6 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. General: Submit each item in this Article in compliance with the Conditions of the Contract and DDC General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- C. Schedule of Selective Demolition Activities: Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged. Note location of each item or material.
- E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- F. Utility Mark-Outs: Provide mark-outs for all utilities prior to the start of any work that may impact concealed utilities. Concealed utilities include, but are not limited to, any utilities that may be concealed within roofing, walls, foundations, floors or below grade.

1.7 PROJECT CONDITIONS

- A. Maintain access to existing walkways, areaways, courtyards, and other adjacent used facilities.
 - 1. Do not close or obstruct walkways or other used facilities without written permission from NYC Department of Buildings and NYC Department of Transportation.
- B. City of New York assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by City of New York as far as practical.
- C. Hazardous Materials: the existing building shall be surveyed for potential hazardous materials.
 - 1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- D. Storage or sale of removed items or materials on-site will not be permitted.



- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 - PRODUCTS

2.1 RESTORATION MATERIALS

- A. Use restoration materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record conditions of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit a written report to Commissioner.
- E. As the Work progresses, Engineer licensed in the State of New York shall be responsible to perform any surveys to detect hazards resulting from selective demolition, removals, and storage activities.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Commissioner. Provide temporary services during interruptions to existing utilities, as acceptable to Commissioner.

3.3 PREPARATION



- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Commissioner, NYC Department of Buildings, and NYC Department of Transportation. Provide alternate routes around closed or obstructed traffic ways if required by NYC Department of Transportation.
 - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by NYC Department of Buildings.
 - 3. Protect existing site improvements, appurtenances, and landscaping to remain.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- D. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being selectively demolished or removed.
 - 1. Strengthen or add new supports when required during progress of selective demolition, removals, and salvage.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use temporary enclosures and other suitable methods to limit spread of dust and dirt. Comply with NYC Department of Environmental Protection regulations.



- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition, removals, and salvage operations. Return adjacent areas to condition existing before work of this Section began.

3.5 SELECTIVE DISASSEMBLY, REMOVALS, AND SALVAGE

- A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of NYC Department of Environmental Protection regulations and as follows:
 - 1. Proceed with selective demolition, removals, and salvage systematically, from higher to lower level. Complete operations above each floor or tier before disturbing supporting members on next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches or open flames of any kind during selective demolition, removals, and salvage work.
 - 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - 7. Locate selective demolition, removals, and salvage equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 8. Dispose of demolished and removed items and materials promptly.
 - 9. Return elements of construction and surfaces that are to remain to condition existing before selective demolition, removals, and salvage operations began.
- B. Existing Facilities: Protect stairs, walkways, building entries, and other building facilities during selective demolition, removal, and salvage operations.



- C. Removed and Salvaged Items: Comply with the following:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to entity designated to restore and reinstall items.
 - 4. Protect items from damage during transport and storage.
 - 5. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition, removals, and salvage.
- E. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition. Removals, and salvage operations.

3.7 DISPOSAL OF DEMOLISHED AND REMOVED MATERIALS

- A. General: Promptly dispose of demolished and removed materials not to be salvaged. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off City of New York's property and legally dispose of them.

END OF SECTION 02 41 91

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 than regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.
- J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the asbestos abatement



contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

- A. Requirements: The asbestos abatement contractor must 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 NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.
- B. Air monitoring of asbestos abatement contractor’s personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).
- C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

- A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third-Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.
- B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).
- C. The Third-Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.
- D. The NYCDDC will be responsible for costs incurred with the Third-Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

- B. The following information shall be included for each payment request:
1. Description of work performed.
 2. Linear footage and pipe sizes involved.
 3. Square footage for boiler & breaching insulation removed.
 4. Square footage of non-pipe and boiler areas removed, patched, enclosed, sealed, or painted.
 5. Square footage of encapsulation, sealing, patching, and painting involved.
 6. Total cost associated with compliance with the assigned task.
 7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
 8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
 9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.
 10. Attach a copy of valid workmen compensation insurance.
 11. Valid asbestos insurance per occurrence.
 12. General liability insurance when required.
- C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests, and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost, and approve or disapprove requests for payment.
- D. EXPOSURE LOG: With this final payment, the asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.



PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

- A. REMOVAL, DISPOSAL, AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.08, multiplied by the unit price in Section 1.04.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

$100 \times 0.65 = 65 \text{ sq.ft.}$ $65 \times \text{unit price} = \text{Payment}$

$100 \times 2.62 = 262 \text{ sq.ft.}$ $262 \times \text{unit price} = \text{Payment}$

- B. REMOVAL, DISPOSAL, AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)



1000 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 03 01 30
CONCRETE RESTORATION**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Provide labor, materials, equipment, and services to provide for the structural restoration 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 and application of weather-resistant anti-carbonation coating.

1.3 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Qualifications
 - 1. Installer: Company specializing in the Work of this Section shall have a minimum of three years of experience.
 - 2. Manufacturer: Company specializing in the manufacture of concrete repair mortars to be used in this Contract shall have a minimum of three years of experience.
- C. 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.
- D. Job Mockups
 - 1. Prior to performing the work of this Section, prepare a sample panel of not less than 12 sq. ft. of concrete restoration work, including a separate mock-up of the surface preparation and coating. For formed restorations, 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.

1.4 REFERENCE STANDARDS

A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

1. American Society of Testing and Materials (ASTM)
2. Steel Structures Painting Council (SSPC)
 - a. "Hand Tool Cleaning - SP2"
 - b. "Power Tool Cleaning - SP3"
3. International Concrete Restoration Institute (ICRI)

1.5 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data
1. Provide manufacturer's information on the anti-corrosion coating and structural repair concrete/mortar, including application instructions and specifications.
- C. Quality Control Submittals
1. Restoration Procedure: Furnish written description of restoration procedures and operations sequencing based on manufacturer's requirements prior to commencing the Work.
 2. Manufacturer's Field Reports: Submit field report from manufacturer of repair mortar indicating areas of surface preparation and mortar placement inspected.



3. Contractor Qualifications
 - a. Provide proof of Installer and Manufacturer qualifications specified under "Quality Assurance".
5. Mock-up: Provide mock-ups as indicated under Quality Assurance.

1.6 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 50°F or above 85°F 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. Sto Concrete Restoration Div., Atlanta, GA 30331
- B. Sika Corp, Lyndhurst, NJ 07071
- C. Strongwall Industries, Ridgewood, NJ 07451
- D. KEIM Mineral Coatings of America, Inc.
Charlotte, North Carolina 28273
- E. or 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 2000 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 1300 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293.
 - 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 10⁶ when tested in accordance with ASTM C469.
2. Repair concrete/mortar shall be "CR702 Sto Overhead Mortar" as manufactured by Sto Concrete Restoration Division, "Sikatop 123 Plus" as manufactured by Sika Corporation, or "SW-88" as manufactured by Strongwall Industries, or 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. Bond strength of 2000 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 1600 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293.
 - 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 3.5×10^6 when tested in accordance with ASTM C469.
2. Repair concrete/mortar shall be "CR701 Sto Trowel-Grade Mortar" as manufactured by Sto Concrete Restoration Division, "Sikatop 122 Plus" as manufactured by Sika Corporation, or "SW-81/SW-81F" as manufactured by Strongwall Industries, or 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 restorations 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 2000 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 1500 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293.
 - 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 3.5×10^6 when tested in accordance with ASTM C469.
 2. Repair concrete/mortar shall be "CR745 Sto Flowable Mortar" as manufactured by Sto Concrete Restoration Division, "Sikatop 111 Plus" as manufactured by Sika Corporation, or "SW-81F" as manufactured by Strongwall Industries, or 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 1800 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 800 psi in 28 days when tested in accordance with ASTM C190.
2. Anti-corrosion coating shall be "CR246 Sto Bonding and Anti-corrosion Agent" by Sto Concrete Restoration Division, "Armatec 110" as manufactured by Sika Corporation, "Ardex BACA" by Ardex, or 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.
- F. Weather-resistant anti-carbonation coating
1. Sol silicate acrylic one-component paint with high protection from carbonation for opaque protective concrete coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. 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.



- C. 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 restoration work procedure what materials will be used where and how the restoration 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 restoration shall be 1/2", with the perimeter 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 restoration 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 restoration. Hooks are to be embedded a minimum of 3" into concrete, installed diagonally to plane of concrete surface. Holes are 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 restoration concrete/mortar application. However, apply restoration material within 24 hours after last coating. If 24 hour period elapses, reapply bonding agent and allow drying as above.

3.4 REPAIR CONCRETE/MORTAR APPLICATION

- A. Mix structural restoration 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 restoration, 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 restoration material of proportions determined by manufacturer (indicate in written restoration procedure). While still damp, apply restoration concrete/mortar.
- D. Apply material behind and around rebars first to completely fill void.
- E. Overhead/Vertical Restorations - Apply restoration 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 Restorations - Pour or trowel restoration concrete/mortar, horizontal application, into hole until it is to the same level and at the same pitch as the surrounding slab. For deep restorations, 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 restoration concrete, horizontal application, on vertical members where formwork can be utilized to confine the concrete and the width of patch area permits its proper installation.
2. Apply flowable restoration mortar for patches to be formed, especially for thin patches.
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 COATING APPLICATION

- A. Apply coating as per manufacturer's recommendations.

3.7 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.



3.8 FIELD QUALITY CONTROL

- A. The Commissioner will inspect surfaces and reject any that contain cracks or other defects. The restoration 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 patches. 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.

END OF SECTION 03 01 30



**SECTION 03 30 00
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes all labor, materials, equipment, and services necessary to complete the work of cast-in-place concrete as shown on the Drawings and specified herein, including reinforcement, concrete materials, mix design, placement procedures, and finishes.
1. Equipment pads
 2. Supply, fabricate and place all required reinforcing bars, mesh and other reinforcement for concrete where shown, called for, and/or required complete with proper supporting devices.
 3. Erection and removal of all formwork required to properly complete the work.
 4. Finishing of all concrete work as hereinafter specified.
 5. Curing and protection of all concrete and cement work.
 6. Completing all other work and supplying all other materials as indicated on the drawings or as may be reasonably inferred and needed to make the work of this section complete.

1.3 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.



- E. Comply with ACI 301, "Specification for Structural Concrete," including the following, unless modified by the requirements of the Contract Documents.
 - 1. General requirements, including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
 - 2. Formwork and form accessories.
 - 3. Concrete mixtures.
 - 4. Handling, placing, and constructing concrete.
- F. Laws, Codes, and Regulations: Perform all work of this Section in compliance with the New York City Building Code, latest edition and all its supplement
- G. Restoration of Damage: Restore and/or replace all broken and damaged elements resulting from work of this Section as directed by and to satisfaction of Commissioner at no additional cost to The City of New York

1.4 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Submit each item in this Article in compliance with the Conditions of the Contract and specification sections. Revise and resubmit each item as required to obtain Commissioner's approval
- C. Qualification Data: Qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified.
- D. Product Literature: Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use, test reports and certificates; verifying that product complies with specified requirements, and Material Safety Data Sheets (MSDS).
- E. Mix Designs: For each concrete mix.
- F. Additional Submittals: Comply with submittal requirements in ACI 301. Number additional submittals sequentially.

PART 2 - PRODUCTS

2.1 FORMWORK

- A. Furnish formwork and form accessories to comply with requirements of ACI 301.

2.2 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Types I or II or Type I/II.



- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 3/4-inch nominal size.
- C. Water: Potable, complying with ASTM C 94, and free of any substance that might adversely affect installation and durability of concrete or reinforcing.

2.3 ADMIXTURES

- A. General: Admixtures to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.

2.4 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable and free of any substance that might adversely affect installation and durability of concrete or reinforcing.

2.5 CONCRETE MIXES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Comply with NYC Mix Design B3200
- C. Prepare design mixes, proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data bases, as follows:
 - 1. Compressive Strength (28 Days): 4000 psi.
 - 2. Slump: 3 inches.
- D. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 4 to 6 percent.
- E. Contractor is responsible for the TR-3 form for Concrete Design mix:
 - 1. Form TR-3: Technical Report Concrete Design Mix: The Contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR-3: 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.

2.6 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with ASTM C 94.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

- A. Refer to DDC General Conditions

3.1 FORMWORK

- A. Construct, erect, and brace formwork to comply with requirements of ACI 301.

3.2 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.3 CONCRETE PLACEMENT

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Consolidate concrete with mechanical vibrating equipment.

3.4 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
 - 1. Do not further disturb surfaces before starting finishing operations.

3.5 TOLERANCES

- A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."



3.6 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with requirements of ACI 306.1 for cold-weather protection, and comply with recommendations in ACI 305R for hot-weather protection during curing.
- B. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- C. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: City of New York will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests will be performed according to ACI 301.
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

3.8 REPAIRS

- A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 03 30 00



**Department of
Design and
Construction**

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**SECTION 07 84 13
THROUGH-PENETRATION FIRESTOP SYSTEMS**

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 through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.3 PERFORMANCE REQUIREMENTS

- A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.
- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814 or UL 1479:
1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
 2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
 - a. Penetrations located outside wall cavities.
 - b. Penetrations located outside fire-resistance-rated shaft enclosures.
 3. L-Rated Systems: Where through-penetration firestop systems are indicated in smoke barriers, provide through-penetration firestop systems with L-ratings of not more than 3.0 cfm/sq. ft at both ambient temperatures and 400 deg F.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.



1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data: For each type of product indicated.
- C. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item.
- D. Qualification Data: For Installer.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Installer Qualifications: A firm that has been approved by FMG according to FMG 4991, "Approval of Firestop Contractors."
- C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:
 1. Firestopping tests are performed by a qualified testing and inspecting agency acceptable to NYC Department of Buildings.
 2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems bearing classification marking of qualified testing and inspecting agency.
- D. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.



PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the through-penetration firestop systems indicated for each application at the end of Part 3 that are produced by one of the following manufacturers:
1. Grace, W. R. & Co.
 2. Hilti, Inc.
 3. 3M; Fire Protection Products Division.
 4. Tremco; Sealant/Weatherproofing Division.
 5. Or approved equal

2.2 FIRESTOPPING

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. Refer to DDC General Conditions.
- B. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- C. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated..
1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- D. Install fill materials for firestop systems by proven techniques to produce the following results:



1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- E. Identification: Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. Include the following information on labels:
1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
 2. Contractor's name, address, and phone number.
 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 4. Date of installation.
 5. Through-penetration firestop system manufacturer's name.
 6. Installer's name.

3.2 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.
- B. Firestop Systems for Metallic Pipes, Conduit, or Tubing
- C. Firestop Systems for Nonmetallic Pipe, Conduit, or Tubing
- D. Firestop Systems for Electrical Cables
- E. Firestop Systems for Cable Trays
- F. Firestop Systems for Insulated Pipes Firestop Systems for Miscellaneous Electrical Penetrants
- G. Firestop Systems for Miscellaneous Mechanical Penetrants

END OF SECTION 07 84 13



**SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of steel doors and frames as shown on the Drawings, specified herein, and as required by conditions and NYC Construction Codes, including, but not limited to, the following:

1. Fire-rated door and frame assemblies.

1.3 DEFINITIONS

- A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- C. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- D. Shop Drawings: Show the following:
1. Elevations of each door design.
 2. Details of doors including vertical and horizontal edge details.
 3. Frame details for each frame type including dimensioned profiles.
 4. Details and locations of reinforcement and preparations for hardware.



5. Details of each different wall opening condition.
 6. Details of anchorages, accessories, joints, and connections.
- E. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.
- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to NYC Department of Buildings, for fire-protection ratings indicated, based on testing according to NFPA 252.
 1. Test Pressure: Test at pressure as required.
 2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to NYC Department of Buildings that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 3. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Commissioner. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/2-inch spaces between stacked doors to permit air circulation.



PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames by one of the following or approved equal:
 - 1. Amweld Building Products, Inc.
 - 2. Ceco Door Products; a United Dominion Company.
 - 3. Curries Company.
 - 4. Kewanee Corporation (The).
 - 5. Republic Builders Products.
 - 6. Steelcraft; a division of Ingersoll-Rand.
 - 7. Or approved equal

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets: ASTM A 569, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
- C. Metallic-Coated Steel Sheets: ASTM A 653, Commercial Steel (CS), Type B, with an A40 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

2.3 DOORS

- A. General: Provide doors of sizes, thicknesses, and designs indicated.

2.4 FRAMES

- A. General: Provide steel frames for doors and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Frames of 0.053-inch- thick steel sheet for Level 2 steel doors.
- C. Frames of 0.067-inch- thick steel sheet for Level 3 steel doors.
- D. Panels: Provide same material and gage as adjacent door.



- E. Supports and Anchors: Fabricated from not less than 0.042-inch-thick, electrolytic zinc-coated steel sheet.
 - 1. Wall Anchors in Masonry Construction: 0.177-inch-diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.
- F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153, Class C or D as applicable.

2.5 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.
- C. Clearances for Fire-Rated Doors: As required by NFPA 80.
- D. Door-Edge Profile: Bevel edge at strike side.
- E. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- F. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- G. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- H. Thermal-Rated (Insulating) Assemblies: At exterior locations, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.
 - 1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of 0.41 Btu/sq. ft. x h x deg F or better.
- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
- J. Frame Construction: Fabricate frames to shape shown.
 - 1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints, unless otherwise indicated.



2. Provide welded frames with temporary spreader bars.
 3. Provide terminated stops, unless otherwise indicated.
- K. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

2.6 FINISHES

- A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to DDC General Conditions.
- B. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- C. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
1. Provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 2. Install fire-rated frames according to NFPA 80.
 3. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.
- D. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
1. Fire-Rated Doors: Install within clearances specified in NFPA 80.

3.2 ADJUSTING AND CLEANING

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08 11 13



**Department of
Design and
Construction**

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**SECTION 08 71 00
DOOR HARDWARE**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes:
1. Mechanical door hardware for the following:
 - a. Swinging doors.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- C. Samples for Initial Selection: For plastic protective trim units in each finish, color, and texture required for each type of trim unit indicated.
- D. Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule. Submit Samples before, or concurrent with, submission of door hardware schedule.
1. Sample Size: Full-size units.
 - a. Full-size Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.
- E. Other Submittals:
1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams.



Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

- a. **Submittal Sequence:** Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
- b. **Format:** Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Double space entries, and number and date each page.
- c. **Content:** Include the following information:
 - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
 - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
 - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
 - 4) Fastenings and other pertinent information.
 - 5) Explanation of abbreviations, symbols, and codes contained in schedule.
 - 6) Mounting locations for door hardware.
2. **Keying Schedule:** Prepared by or under the supervision of Installer, detailing City of New York's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

F. **Qualification Data:** For Installer.

G. **Warranty:** Special warranty specified in this Section.

H. **Maintenance Data:** For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.4 QUALITY ASSURANCE

A. **Installer Qualifications:** Supplier of products and an employer of workers instructed and approved by product manufacturers.

1. **Scheduling Responsibility:** Preparation of door hardware and keying schedules.



- B. Source Limitations: Obtain each type of door hardware from a single manufacturer.
- C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
- D. Smoke-and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.
- E. Accessibility Requirements: Comply with applicable provisions in the DOJ's 2010 ADA Standards for Accessible Design for door hardware on doors in an accessible route.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf
 - 2. Comply with the following maximum opening-force requirements:
 - a. Fire Doors: Minimum opening force allowable by NYC Building Code.
 - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high
 - 4. Closers: Adjust door and gate closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.
- F. Keying Conference: Conduct conference at Project site. In addition to Commissioners, and Contractor, conference participants shall also include Commissioner's security consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
 - 1. Requirements for key control system.
 - 2. Requirements for access control.
- G. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Inspect and discuss preparatory work performed by other trades.



1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- C. Deliver keys to manufacturer of key control system for subsequent delivery to Commissioner.
- D. Deliver keys and permanent cores to Commissioner by registered mail or overnight package service.

1.6 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Set anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Commissioner's security consultant.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, cracking, or breakage.
 - b. Faulty operation of doors and door hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
 - 2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

1.8 SERVICE GUARANTEE

- A. Service Tools and Instructions: Furnish a complete set of specialized tools and service instructions for City of New York's continued adjustment, service, and removal and replacement of door hardware.



- B. Beginning at Substantial Completion, provide one (1) year of full service by skilled employees of door hardware Installer. Include quarterly preventive service, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
1. Provide Hinges from one of the following:
- a. Stanley Commercial Hardware
480 Myrtle St
New Britain, CT 06053
800-622-493
 - b. Baldwin Hardware Corp.
841 E. Wyomissing Blvd
Reading, PA 19612
215-777-7811
 - c. Hager Companies
139 Victor St
St. Louis, MO 63157-0300
800-325-9995



d. Or approved equal.

2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 - 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
 - 2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
- C. Lock Backset: 2-3/4 inches, unless otherwise indicated.
- D. Lock Trim:
 - 1. Description: As indicated on the hardware schedule in Part 3.
 - 2. Levers: Cast.
 - 3. Escutcheons (Roses): Cast.
 - 4. Operating Device: Lever with escutcheons (roses).
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
 - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
- F. Mortise Locks: BHMA A156.13; Security Grade 1; stamped steel case with steel or brass parts; Series 1000.
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include:
 - a. Sargent Manufacturing
100 Sargent Drive
New Haven, CT 06563-0915
800-727-5477
 - b. Corbin Russwin Inc.
PO Box 25288
Charlotte, NC 28229-8010
704-283-2101



- c. Best Access Systems
6161 East 75th Street
Indianapolis, IN 46250
317-849-2250
- d. Or approved equal.

2.4 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
 - 1. Manufacturer: Same manufacturer as for locking devices.
- B. High-Security Lock Cylinders: BHMA A156.30; Grade 1; Type M, mechanical; permanent cores that are removable; face finished to match lockset.

2.5 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
 - 1. Existing System:
 - a. Master key locks to City of New York's existing system.
- B. Keys: Brass.
 - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: "DO NOT DUPLICATE."
 - 2. Quantity: In addition to one extra key blank for each lock, provide the following:
 - a. Cylinder Change Keys: Three.
 - b. Master Keys: Five.

2.6 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

2.7 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and



anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include
 - a. Stanley Commercial Hardware
480 Myrtle St
New Britain, CT 06053
800-622-493
 - b. Rixson Specialty Door Controls
Monroe, NC
800-457-5670
 - c. Corbin Russwin Inc.
PO Box 25288
Charlotte, NC 28229-8010
704-283-2101
 - d. Or approved equal.

2.8 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include
 - a. SARGENT Manufacturing Company
100 Sargent Drive
P.O. Box 9725
New Haven, CT 06536-0915
 - b. Yale Security Inc; an ASSA ABLOY Group company
P.O. Box 25288
Charlotte NC 28229-8010



- c. Stanley Commercial Hardware
480 Myrtle St
New Britain, CT 06053
800-622-493
 - d. Or approved equal
- 2. All exit devices shall be of touch bar design and be operative over 2/3 of the door's clear opening width
 - 3. All exit devices must be listed under "panic Hardware" in the Accident Equipment List of Underwriter's Laboratories, Inc. Where labeled doors are used as exits, they must be equipped with labeled Fire Exit Hardware
 - 4. All springs shall be of stainless steel.
 - 5. All exit devices shall be of chassis mounted until construction with removable cover.

2.9 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Commissioner.
 - 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
- D. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
 - 1. Fire-Rated Applications:



- a. Wood or Machine Screws: For the following:
 - 1) Hinges mortised to doors or frames
 - 2) Strike plates to frames.
 - 3) Closers to doors and frames.
- b. Steel Through Bolts: For the following unless door blocking is provided:
 - 1) Surface hinges to doors.
 - 2) Closers to doors and frames.
 - 3) Surface-mounted exit devices.
2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
3. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
4. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.10 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.



- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as directed by Commissioner.
 - 2. Furnish permanent cores to Commissioner for installation.
- E. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant
- F. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.



3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of NYC Building Code.
- B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 INSTRUCTION

- A. Engage a factory-authorized service representative to instruct Commissioner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.7 DOOR HARDWARE SCHEDULE

DOOR NO.	TYPE	ACTION	DOOR MAT.	FRAME MAT.	HARDWARE				
					DOOR CLOSER	HINGE	SADDLE	DOOR STOP	MISC.
Cellar									
Basement									
1	Rated	Double Leaf	Hollow Metal	Hollow Metal / Mortar Filled	Surface Mounted Door Closer	Three (3) Tamperproof Stainless Steel Hinges per Leaf	Aluminum w/ Smoke Seal	Overhead Stop without Holder	Astragal at Active Leaf/Two (2) Flush Bolts at Inactive Leave. Panic Hardware with Rim Cylinder

END OF SECTION 08 71 00



**SECTION 09 22 16
NON-STRUCTURAL METAL FRAMING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.

- B. Product Data: For each type of product.

1. Studs and Runners: Provide documentation that framing members' certification is according to SIFA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members."

- C. Evaluation Reports: For embossed steel studs and runners and firestop tracks, from ICC-ES.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.



2.2 FRAMING SYSTEMS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- C. Studs and Runners: ASTM C 645. Use either steel studs and runners or embossed steel studs and runners.
 - 1. Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection: 0.0179 inch
 - b. Depth: 3-5/8 inches.
 - 2. Embossed Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements: 0.0147 inch.
 - b. Depth: 3-5/8 inches.
- D. Slip-Type Head Joints: Where indicated, provide the following:
 - 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
- E. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- F. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
 - 1. Depth: 1-1/2 inches.
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.



1. Minimum Base-Metal Thickness: 0.0179 inch.
2. Depth: 1-1/2 inches.

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.



3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: 16 inches unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 - 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
 - 1. Screw to wood framing.
 - 2. Attach to masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 09 22 16



SECTION 09 29 00

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:
1. Interior gypsum board.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data: For each type of product.
- C. Samples: For the following products:
1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
- D. Samples for Initial Selection: For each type of trim accessory indicated.
- E. Samples for Verification: For the following products:
1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Mockups: Build mockups of at least 20 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
1. Build mockups for the following:
 - a. One (1) partition around piping as indicated on the plans.
 2. Apply or install final painting on exposed surfaces for review of mockups.



3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Wallboard: ASTM C 1396/C 1396M.
Gypsum wallboard is also available in 1/4- and 3/8-inch (6.4- and 9.5-mm) thicknesses for limited applications.
 1. Thickness: 5/8 inch, Type X
 2. Long Edges: Tapered.



- B. Acoustically Enhanced Gypsum Board: ASTM C 1396/C 1396M. Multilayer products constructed of two layers of gypsum boards sandwiching a viscoelastic sound-absorbing polymer core.
1. Product: Subject to compliance with requirements, provide product by one of the following:
 - a. National Gypsum Company.
 - b. Quiet Solution.
 - c. Temple-Inland Building Products by Georgia-Pacific.
 - d. Or approved equal.
 2. Core: 5/8 inch, regular type.
 3. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet
 2. Shapes:
 - a. Cornerbead.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 3. Fill Coat: For second coat, use drying-type, all-purpose compound.



4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 1. Laminating adhesive shall have a VOC content of 50g/L or less.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

Retain first subparagraph below if panels are attached to cold-formed metal framing specified in Section 054000 "Cold-Formed Metal Framing."

 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- C. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not r than 1/16 inch of open space between panels. Do not force into place.
- C. Locate edge and end joints over supports, where intermediate supports or gypsum board back-bal⁵ is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger^{med} joints on opposite sides of partitions. Do not make joints other than control joints at corners / openings.
- D. Form control and expansion joints with space between edges of adjoining gypsum panels.



- E. Cover both faces of support framing with gypsum panels in concealed spaces except in chases braced internally.
 - 1. Fit gypsum panels around ducts, pipes, and conduits.
 - 2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- F. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Wallboard Type: Vertical surfaces unless otherwise indicated.
- B. Multilayer Application:
 - 1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 - 2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Commissioner for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.



- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00



**SECTION 09 51 00
ACOUSTICAL CEILINGS**

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 acoustical ceiling Work as indicated on Drawings and as specified herein, including the following:
1. Acoustical Mineral Fiber Tile and Panel Ceilings.
 - a. Lay-in panel installation - exposed grid

1.3 REFERENCES

- 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 for Testing and Materials (ASTM), latest edition.
- | | |
|-------|---|
| C423 | Test Method for Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method. |
| C635 | Metal Suspension System for Acoustical Tile and Lay-In Panel Ceilings. |
| C636 | Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels. |
| D1779 | Specification for Adhesion for Acoustical Materials |
| E84 | Surface Burning Characteristics of Building Materials. |
| E90 | Standard Test Method for Laboratory Sound Transmission Class |



- E119 Method for Fire Tests of Building Construction and Materials.
- E413 Determination of Sound Transmission Class
- E1264 Standard Classification for Acoustical Ceiling Products.
- E1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a common Ceiling Plenum (CAC)
- E1477 Standard Test Method for Luminance Reflectance Factor (LR) LR1 >75%
- C. AMA -I-II Ceiling Sound Transmission Test By Two-Room Method
- D. Underwriters Laboratories Inc. (UL) Fire Resistance Directory
- E. Acoustical and Insulation Materials Association, "Job Conditions".
- F. New York City Building Code.
- G. New York City Board of Standards and Appeals (BSA) approvals; New York City Materials Equipment Acceptance (MEA).

1.4 DEFINITIONS

- A. Direct Suspension System
 - 1. Directly fastened to floor or roof construction above.
- B. Indirect Suspension System
 - 1. Installed as part of the Work of this Section, as furnished by ceiling system manufacturer to be attached to direct suspension system.

1.5 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data
 - 1. Submit manufacturer's product specifications and installation instructions for ceiling materials, indicating compliance with applicable requirements. Include information pertaining to fire performance, flame spread, and smoke development.



C. Shop Drawings

1. Submit shop drawing details indicating the relationship to mechanical and electrical Work and other items penetrating or connected to the ceiling. Indicate framing and support details for the ceiling Work.
2. Acoustical Panel Ceilings
 - a. Submit large scale details indicating how ceiling mounted items such as lighting fixtures and HVAC diffusers are installed.
 - b. Submit ceiling plans for coordination with mechanical trades. Indicate which panels are to be installed without retainer clips, to enable service and maintenance access.

D. Samples

1. Submit samples of the following materials, prior to installation;
 - a. Acoustical panels: 6"x6" samples of each type, pattern and color.
 - b. Lay-in mineral fiber acoustical panel with field cut tegular edge on one edge, painted to match factory tegular edges. The other three edges shall have manufactured tegular profile: 12" x 24" sample.
 - c. Exposed runners and moldings: 8" long samples of each color and system type required.
2. Forward each approved sample type to Mechanical Installer for purpose of matching diffusers.

E. Low Emitting Materials Compliance Submittals:

1. Provide documentation for each sealant and adhesive to be used indicating that the sealants and adhesives comply with New York City V.O.C. requirements.



1.6 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Qualifications
 - 1. Installer is to be a firm with not less than three years of successful experience in the installation of specified materials.
- C. Regulatory Requirements
 - 1. Building Code: Work of this Section shall conform to all requirements of the N.Y.C. Building Code.
- D. Fire Performance Characteristics
 - 1. Provide ceiling components that are identical to those tested for the following fire performance characteristics, according to ASTM test method, by UL or other testing and inspecting agency acceptable to NYC Department of Buildings. Identify ceiling components with appropriate marking of applicable testing and inspecting agency.
 - a. Surface Burning Characteristics: Tested per ASTM E84. Tested surfaces shall be the surfaces facing the occupied space.
 - 1. Flame Spread: 25 or less.
 - 2. Smoke Developed: 25 or less.
 - b. All materials exposed to the airflow in ceiling cavity plenums used for supply, return, or exhaust air shall be non-combustible or have a maximum smoke developed index/rating of 50, as defined by and in accordance with NYC Construction Code Sections BC 719 and MC 602. Flame spread index shall not exceed 25. Tested surfaces shall be the surfaces facing the plenum.
- E. Fire Resistance Ratings
 - 1. When the drawings indicate that the acoustical ceiling construction is part of a fire-rated floor/ceiling or roof/ceiling assembly, provide certification by an Approved Agency, in accordance with NYC Dept. of Buildings rules, indicating approval of the ceiling for use in the assembly described.



F. Coordination of Work

1. Coordinate layout and installation of ceiling units and suspension system components with other work above, supported by, or penetrating through ceilings, including light fixtures, HVAC equipment, fire-suppression systems and partitions. Resolve all discrepancies and conflicts prior to start of Work.

G. Pre-installation Meeting

1. Prior to start of Work, installer of ceiling system and representatives of trades involved are to have a conference at the job site, in the presence of the Commissioner, to discuss coordination of ceiling system installation and resolve all discrepancies.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery

1. Deliver all acoustical units in manufacturer's original, unopened packages fully identified with type, finish, performance data and compliance labeling.

B. Storage

1. Store materials where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
2. Store tile containers in space where they will be installed for at least 24 hours prior to installation to stabilize moisture content and temperature.

C. Handling

1. Handle ceiling units carefully to avoid chipping edges or damaging units in any way.

1.8 PROJECT CONDITIONS

- A. Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and dry, work above ceilings is completed, and until air temperature and humidity are maintained at values of final occupancy.

1. Pressurized plenums: Operate HVAC system for not less than 48 hours before beginning acoustical panel installation.



1.9 GUARANTEE

- A. Work showing defects in workmanship or materials within the one year guarantee period specified in the Contract shall be corrected as directed by the City of New York. Defects include but are not limited to:
1. Tiles or suspension system loose or improperly secured.
 2. Tiles or suspension members showing discoloration or cracking.
 3. Tiles or suspension members warping, sagging, or deforming.

PART 2 - PRODUCTS

2.1 MANUFACTURERS, MODELS

A. Acoustical Tile

1. Mineral Composition Tile (12" x 12") with sag resistance to at least 104°F, 90% RH.
 - a. Armstrong World Industries
 - b. CertainTeed Corporation
 - c. USG Interiors Inc.
 - d. Or approved equal

B. Acoustical Panels

1. Mineral Composition Panels (24" x 48" x 3/4")
 - a. USG Interiors Inc. "Mars", product number 8875, with environmental performance type "ClimaPlus".
 - b. Armstrong World Industries "Ultima", product number 1914, with environmental performance type "HumiGuard Plus".
 - c. CertainTeed Corporation "Symphony-m", product number 1220BB-IOF-1, with environmental performance type "104/90".
 - d. Or approved equal



- C. Indirect Metal Suspension Systems (suspension members for panel ceilings shall be by the manufacturer of the ceiling panels or by a company recommended by the panel manufacturer).
1. Chicago Metallic Corporation
 2. Donn Corporation / USG Interiors, Inc.
 3. Armstrong World Industries, Inc.
 4. Or Approved equal

2.2 MATERIALS - ACOUSTICAL TILES AND PANELS

A. Mineral Fiber Tile and Panels

1. Provide units per ASTM E1264; of designation, style, finish, color, acoustical range, edge detail and size as indicated below:
 - a. Suspended (Exposed grid, lay-in) Installation

Style:	Fine Texture
Size:	24" x 48" x 3/4", or as indicated.
Edge Profile:	Reveal beveled tegular, or as indicated.
Weight:	0.95-1.05 lbs./sq.ft.
NRC:	Min. .70
CAC:	Min. 35
Light Reflectance	Min. .85 Average
Color:	White
Finish:	Factory finish

- B. Provide fire-rated ceiling systems when indicated on the Drawings as part of a fire-rated assembly, with ratings as stipulated.

2.3 MATERIALS - METAL SUSPENSION SYSTEMS - INDIRECT HUNG

- A. Exposed Grid Suspension System: manufacturer's standard system, with design and finish as selected by the Commissioner.
 1. Structural Classification: Heavy-duty system in accordance with ASTM C 635.



2. Face width: 15/16".
3. Main runners: Connect to direct suspension system. Conform to ASTM C 635 for heavy-duty classification.
4. Provide runners suitable for attachment of hold-down clips and impact clips as applicable.
5. Hold-Down Clips for Non-Fire-Rated Ceilings: For ceilings composed of lay-in panels, provide hold-down clips spaced 2'-0" o.c. on all cross tees.
6. For metal panel ceilings the exposed grid shall be furnished by the panel manufacturer, or by a company recommended by the panel manufacturer, and finish shall match panels. Main runners and cross runners shall be G60 hot-dipped galvanized steel in accordance with ASTM A653, with aluminum capping.
7. Impact Clips: Provide in high impact areas, including corridors, lobbies, and gymnasiums, and at other locations indicated. Provide manufacturer's impact clip ("keep clip") system designed to absorb impact forces against lay-in panels. Provide number of clips recommended by manufacturer; not less than 4 clips per panel. System shall meet requirements of Article titled "Impaction Ceiling System Installation".

2.4 MISCELLANEOUS MATERIALS

A. Tile Adhesive

1. Comply with ASTM D1779 or FS-MMM-A-00150, factory made product recommended by manufacturer, bearing UL label for Class 0-25 flame spread.
2. All adhesives used on site shall comply with New York City V.O.C. requirements..

B. Primer shall be in accordance with manufacturer of acoustical tile adhesive and substrate shall be primed with one of the following products prior to application of adhesive to remove any residual which would prevent proper attachment of tile:

1. Chemical Wash
2. Sizing
3. Adhesive base or primer
4. All adhesive base and primers used on site shall comply with low V.O.C. standard.



- C. Edge Moldings and Trim Pieces
 - 1. Provide manufacturer's standard molding for edges and penetrations of ceiling units which fit with type of edge detail and suspension system indicated.

- D. Tile Fasteners
 - 1. Cadmium plated, type recommended by tile manufacturer, but for not less than 1/2" penetration of substrate.

- E. Drop Clips
 - 1. 18 gage galvanized steel with key hole slot, or other configuration approved by New York City Dept. of Buildings for connection of ceiling suspension members to carrying channels.

 - 2. Drop clips shall be of length required for indicated ceiling height, and to provide clearances for lighting fixtures, mechanical equipment, and other items above the ceiling. Where necessary because of limited clearance, provide clips that connect runners tight to the bottom of carrying channels.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.

- B. Examine the building before beginning Work to determine that it is properly enclosed and the structure is in proper condition to receive acoustical materials and suspension system. Area shall be broom cleaned and uninterrupted for free movement of rolling scaffold. Do not proceed until satisfactory conditions prevail.

- C. Verify that direct suspension system has been installed properly, that main runners are spaced evenly and have been leveled to a tolerance of 1/8" in 12' measured both lengthwise on each runner and transversely between parallel runners so that indirect suspension system installation may proceed accurately.

- D. Start of Work constitutes acceptance of existing conditions, therefore, contractor is advised to bring any discrepancies to the attention of the Commissioner prior to start of Work.



3.2 PREPARATION

A. Coordination

1. Provide and coordinate the locations of inserts, clips, or other supports for support of acoustical ceilings.
2. Determine the length of drop clips required to maintain indicated ceiling height and to provide necessary clearance for electrical, mechanical and other equipment. Where necessary for clearance, clips that connect runners tight to the bottom of carrying channels shall be used.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders and comply with reflected ceiling plans.

C. Adhesive Tile Installations

1. Before installing adhesively-applied tile on wet-placed substrate such as cast in place concrete or plaster, test and verify that moisture level is below tile manufacturer's recommended limits.
2. Surface Preparation: Remove dirt, dust, oil, grease, and other foreign matter that may impair proper bonding of the tile adhesive. Clean and prepare substrate in accordance with the adhesive manufacturer's instructions and as specified.
 - a. Existing Painted Surfaces: Remove loose, peeling, and blistered coatings. Sand glossy surfaces to a dull finish.
 - b. Concrete Surfaces: Remove laitance, fins, and other defects that may impair bonding of the tile adhesive or may prevent alignment of tiles in a uniform plane.

3.3 INSTALLATION - GENERAL

A. Install materials in accordance with manufacturer's printed instructions and in compliance with ASTM C636, fire resistance rating requirements, as indicated.

1. Coordinate requirements for Work of other trades to be built into ceiling system. Provide supplementary framing as required.

B. Arrange directionally-patterned units (if any) in manner shown by reflected ceiling plans, or as approved by the Commissioner. Install in patterns indicated, (balanced borders all sided) symmetrical or centered about center line of corridors, panels, fixtures, beam haunches, rooms, spaces.



- C. Cut as required for installation of electric fixtures, air diffusers, grilles, sprinkler heads, security devices, access doors, etc., provided under other contracts. Verify sizes and locations with other trades.
- D. On completion, the ceilings shall present a uniform horizontal plane surface, unless otherwise indicated, free from blemishes and imperfections. Exposed grid cross runners shall fit tightly against adjacent main runners, with no visible gaps.
- E. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
 - 1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 - 2. Screw-attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
- F. Install panels in coordination with suspension system with suspension members concealed by support of tile units.
- G. Neatly scribe and cut panels to fit accurately at borders, interruptions, and penetrations. The cut edges of reveal tegular lay-in mineral fiber panels shall be field cut to match profile of factory edges, in accordance with manufacturer's printed instructions. Paint the cut edges to match factory finish where exposed to view, using paint supplied by panel manufacturer.

3.4 DIRECT (ADHESIVE) TILE INSTALLATION

- A. Apply primer as specified herein to all concrete surfaces prior to cementing tiles in place.
- B. Remove loose dust from backs of tiles by brushing and then priming them with thin coat of adhesive.
- C. Cement acoustic tile directly to concrete ceiling slab, between beam haunches and to plaster or gypsum board ceiling with (4) spots of adhesive to each square foot of tile. Each spot of adhesive shall produce a surface of not less than (2) inches in diameter after tile has been pressed in place.
- D. Fit adjoining tiles to form neat and uniform hairline joints that are straight and parallel to the room axis in both directions. Install directionally patterned or textured tiles in a checkerboard pattern unless otherwise indicated.
- E. Scribe and cut tile to fit accurately at ceiling edges and penetrations. Install molding at ceiling perimeter, openings, cut-outs and where otherwise indicated.



3.5 ADJUSTING AND CLEANING

- A. Clean exposed surfaces of ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage.
- B. Remove and replace Work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- C. Remove and replace Work that is damaged or soiled by other trades as directed by the Commissioner.

END OF SECTION 09 51 00



SECTION 09 65 13

RESILIENT BASE

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. Vinyl base.
 - 2. Vinyl molding accessory.

1.3 ACTION SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Product Data: For each type of product.
- C. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.
- D. Samples for Initial Selection: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Coordinate mockups in this Section with mockups specified in other Sections.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless the Commissioner specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.



1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg or more than 90 deg F.

1.6 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 VINYL BASE

- A. Manufacturers:
 - 1. Johnsonite/Tarkett
 - 2. Armstrong World Industries, Inc.
 - 3. Roppe Corporation
 - 4. Or approved equal.
- B. Product Standard: ASTM F 1861, Type TV (vinyl, thermoplastic).
 - 1. Group: I (solid, homogeneous).
 - 2. Style and Location:
 - a. Cove: Provide in areas with resilient floor coverings.
- C. Minimum Thickness: 0.125 inch.
- D. Height: 4 inches.
- E. Lengths: Cut lengths 48 inches long.



- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Colors and Patterns: to be selected by Commissioner.

2.2 VINYL MOLDING ACCESSORY

- A. Manufacturers:
 - 1. Azrock/Tarkett
 - 2. Armstrong World Industries, Inc.
 - 3. Roppe Corporation
 - 4. Or approved equal.
- B. Description: Vinyl transition strips
- C. Profile and Dimensions: As indicated.
- D. Locations: Provide vinyl molding accessories in areas indicated.
- E. Colors and Patterns: to be selected by commissioner.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.



- B. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.
- H. Job-Formed Corners:



1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Miter corners to minimize open joints.

3.4 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 1. Remove adhesive and other blemishes from surfaces.
 2. Sweep and vacuum horizontal surfaces thoroughly.
 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, adhesive, and blemishes from resilient stair treads before applying liquid floor polish.
 1. Apply two coats.
- E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 09 65 13



**Department of
Design and
Construction**

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SECTION 09 91 23
INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
1. Concrete.
 2. Gypsum board.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.



- B. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- C. Sustainable Design Submittals:
 - 1. For flat paint, product data showing maximum concentration of VOC of 100 g/L.
 - 2. For non-flat paint, product data showing maximum concentration of VOC of 150 g/L.
- D. Samples for Initial Selection: For each type of topcoat product.
- E. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- F. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".
- B. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. The Commissioner will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
 - b. Other Items: the Commissioner will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by the Commissioner at no added cost to the City of New York.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless the Commissioner specifically approves such deviations in writing.



4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specified requirements, provide "First Line" or "Top Quality" products of one of the following manufacturers:
 1. Benjamin Moore and Co.
 2. The Sherwin Williams, Co.
 3. PPG Industries, Pittsburgh Paints Inc.
 4. Or approved equal

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.



- C. Flat paint shall have maximum VOC content of 100 g/L. Non-flat paint shall have maximum VOC content of 150 g/L.
- D. Colors: As selected by the Commissioner

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Refer to DDC General Conditions.
- B. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- C. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (CMUs): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Gypsum Board: 12 percent.
- D. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- E. Plaster Substrates: Verify that plaster is fully cured.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.



1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 7/NACE No. 4.
 4. SSPC-SP 11.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.



- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.
 - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - 2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by the Commissioner.
 - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by the Commissioner, and leave in an undamaged condition.



- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Institutional Low-Odor/VOC Latex System MPI INT 3.1M.
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 3, MPI #145.

B. Concrete Substrates, Traffic Surfaces:

1. Latex Floor Enamel System MPI INT 3.2A.
 - a. Prime Coat: Floor paint, latex, matching topcoat.
 - b. Intermediate Coat: Floor paint, latex, matching topcoat.
 - c. Topcoat: Floor paint, latex, low gloss, maximum MPI Gloss Level 3, MPI #60.

C. Gypsum Board Substrates:

1. Institutional Low-Odor/VOC Latex System MPI INT 9.2M.
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (MPI Gloss Level 5), MPI #147. "High-Performance Architectural Latex System" Subparagraph below is recommended for high-traffic and high-contact areas (e.g., public corridors in institutional buildings).

END OF SECTION 09 91 23



**Department of
Design and
Construction**

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**SECTION 23 02 00
FIRESTOPPING**

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

- A. Provide a U.L. approved firestopping system in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site.
- C. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- D. Submit Material Safety Data Sheets with product delivered to job site.
- E. Submit U.L. for the complete system of firestopping for each type penetration.
- F. Submit complete details of each type of penetration to be used indicating the proper U.L. approved firestop system and U.L. system number.

1.5 QUALITY ASSURANCE

- A. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.



- B. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.

Line #	Penetrating Item	Type of Rated Wall/Floor	Rating (Hrs.)	U.L. System #
1	Steel Pipe (12" or smaller)	Concrete or Concrete Block	3	399
2	Steel Pipe or EMT Conduit	Concrete or Concrete Block	2	215, 216, 223
3	Steel Pipe or EMT Conduit	Concrete or Concrete Block	1	221
4	Steel Pipe or EMT Conduit	Gypsum Wall	2	425
5	Steel Pipe or EMT Conduit	Wood Floor Assembly	2	306
6	Copper Pipe (not insulated)	Concrete or Concrete Block	2	400
7	Insulated Steel Pipe/Conduit	Concrete or Concrete Block	2	301
8	Insulated Copper Pipes(s)	Concrete or Concrete Block	2	310, 402, 403
9	PVC Pipe (6" or smaller)	Concrete or Concrete Block	2	300, 226
10	PVC Pipe (4" or smaller)	Concrete or Concrete Block	3	300
11	PVC Pipe (4" or smaller)	Gypsum Wall	2	312, 227, 228
12	PVC Pipe (4" or smaller)	Wood Floor Assembly	2	303
13	CPVC and PB Pipe	Concrete or Concrete Block	2	226
14	ABS Pipe (2" or smaller)	Gypsum Wall	2	227
15	PP Pipe (4" or smaller)	Concrete or Concrete Block	2	300
16	Glass Pipe (4" or smaller)	Concrete or Concrete Block	2	302
17	Cables (Power, Control, Phone)	Concrete or Concrete Block	2, 3	222, 224, 307



Line #	Penetrating Item	Type of Rated Wall/Floor	Rating (Hrs.)	U.L. System #
18	Cables (Power, Control)	Gypsum Wall	2	425
19	Phone Cable (25 pair or smaller)	Wood Floor Assembly	2	304
20	Joints (up to 3" wide)	Concrete or Concrete Block	2	214
21	Blank Opening	Concrete or Concrete Block	2	311

PART 2 - PRODUCTS

2.1 FIRESTOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
 1. Penetrations for the passage of through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
 2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.2 MATERIALS

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.



2.3 MANUFACTURERS

- A. Hilti
- B. Dow Corning
- C. Flamesafe
- D. International Protective Coatings
- E. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- C. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- D. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- E. Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.2 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.

3.3 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.4 INSTALLATION

- A. Install firestop materials as indicated in accordance with design requirements and manufacturer's instructions.



- B. Seal all holes or voids made by penetrations to ensure an air, smoke and water-tight seal.
- C. Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.
- D. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
- E. Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.
- F. Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the Commissioner prior to penetrating any load bearing assembly.
- G. Firestop systems are not intended to support live loads or traffic. Contractor shall consult the Commissioner if he has reason to believe these limitations may be violated.

3.5 FIRESTOPPING

- A. Insulated Cold Pipes
 - 1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.
 - 2. Eliminate insulation for depth of wall and fill space between with firestop expanding foam leaving sufficient space at each end of sleeve for proper depth of firestop.
 - 3. Install firestop material at each end of sleeve to form a U.L. approved system.
 - 4. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.
- B. Hot Pipes (Up to 220°F)
 - 1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.
 - 2. Eliminate insulation for depth of wall and, using section of specified insulation as backing, install proper depth of firestop material on each end of sleeve to form a U.L. approved system.
 - 3. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.
- C. Diesel Exhaust Pipes, Hot Pipes Over 220°F, and Kitchen Range Hood Exhaust Ducts
 - 1. Install proper sleeve through wall with an inside diameter large enough to include specified insulation thickness.



2. Eliminate insulation for depth of wall and, using section of specified insulation as backing, install proper depth of firestop material on each end of sleeve to form a U.L. approved system.
3. Weld a 20 gauge sheetmetal expansion compensator, as shown on the Drawings, to the Compensator to be formed "U" shape 2" wide and of sufficient length so as to be 6" above insulation. Pre-compress compensator, fill compensator with 6 lb. density fiberglass insulation.
4. Install specified insulation on each side of wall up to expansion compensator.

END OF SECTION 23 02 00



**SECTION 23 05 13
ELECTRIC MOTORS**

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

- A. Provide electric motors in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Electric Motors.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings: Submit electric motor characteristics with each equipment submission.
- C. Product Data: Manufacturer's latest published data for materials, equipment, accessories and installation.

1.5 QUALITY ASSURANCE

- A. Motor efficiency is Guaranteed Minimal Efficiency according to NEMA Standard MG-1-12.53a when tested in accordance with IEEE Standard 112.

1.6 WARRANTY

- A. Manufacturer shall provide one (1) year warranty.

PART 2 - PRODUCTS

2.1 ELECTRIC MOTORS

- A. Provide high efficiency electric motors for driving the mechanical equipment. Motors to be of proper power, construction and speed to suit the specified makes of equipment; if other makes of equipment are accepted, the proper adjustment of motor speed, power, and work of Division 26 must be included without additional cost to the City of New York.



- B. 1/2 horsepower and larger motors to be rated at 208 volts for operation on 208 volt, 3 phase, 60 hertz, alternating current systems, except as otherwise noted. 1/3 horsepower and smaller motors to be rated at 115 volts for operation on 120 volt, single phase, 60 hertz, alternating current systems, except as otherwise noted.
- C. Motors to be of constant speed, squirrel-cage type. Single phase motors to be capacitor start, induction run, or split phase type as approved for the service. Motors over 100 horsepower to be suitable for operation with reduced-voltage auto-transformer type starters.
- D. All 1/2 horsepower and larger motors to have Class B insulation suitable for ambient temperature of 40°C. when operated at 115% load.
- E. All motors to be of quiet operation, guaranteed to fulfill the specified requirements without producing any sound audible outside of Machine Rooms. All belt connected motors to have adjustable bases and set screws to maintain proper belt tension; provide proper belt guards.
- F. All motors and accessories to comply in all respects with NEMA standards.
- G. Coordinate the NEMA type of each motor with the torque and inertia load of the equipment served, and the inrush characteristics of the motor with the starter selection, so that all items furnished constitute a properly related package. No motor to operate in the service factor range.
- H. Cooling tower motors to be TEFC; others to be drip-proof construction. Motors 1 horsepower or larger to have encapsulated stator windings of the epoxy or silicone type.
- I. Fan motors to be capable of accelerating their respective fans from 0 revolutions per minute to design or synchronous revolutions per minute within a maximum of 10 seconds. Submit for approval curves which plot time versus revolutions per minute for the particular motor and fan combination.
- J. All motors used in variable speed applications to be suitable for use with variable frequency drives.
- K. Motorized equipment rated at more than 1000 watts to have a power factor not less than 95 percent under rated nameplate conditions. Provide corrective devices where required to achieve this.
- L. Provide thermistor protection for windings on all motors 25 horsepower and above. Where motors are controlled by individual motor starters, provide relays for installation under Division 26. Relays in "motor control centers" to be provided by the Contractor furnishing the motor control centers.
- M. All vertical motors 150 horsepower and above to be provided with bearing temperature detectors on thrust bearing. Provide contactors and circuitry to give remote alarm at temperatures above 175°F.

2.2 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufacturers specified:
 - 1. General Electric
 - 2. Marathon



3. Lincoln
4. Siemens-Allis
5. Or approved equal.

PART 3 - EXECUTION

3.1 WIRING

- A. Refer to DDC General Conditions
- B. Wiring between motor and controllers will be performed under Division 26.
- C. Review Division 26 and the BMS specifications/documents for required accessories, interlocks, etc. Failure to fully coordinate this item with the other Divisions in no way relieves this Contractor from providing a complete, functional, and coordinated system as described.

END OF SECTION 23 05 13



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**SECTION 23 05 16
EXPANSION FITTINGS AND LOOPS FOR HVAC 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 WORK INCLUDED

- A. Rubber Expansion Joints.
- B. Flexible Metal Hoses.
- C. Pipe Guides.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit manufacturers' latest published data for materials and installation, including maximum pressure and temperature ratings.
- C. Submit sufficient calculations to indicate clear conformance to the expansion joint design equations. For bellows joints, the calculations shall be as specified in the Standards of the Expansion Joint Manufacturers Association, Inc. (EJMA), Tenth Edition, 2016, and all addenda, submit information required to calculate the thermal movement, and/or force and stress calculation, including pipe length, pipe materials.

1.4 QUALITY ASSURANCE

- A. Construct guide and expansion compensators in accordance with ANSI, ASTM and ASME standards.
- B. Provide expansion compensators compatible with pressure and temperature of system installed.
- C. The expansion joint manufacturer must maintain a quality assurance system approved to ASME Code Section VIII or certified to an approved ISO 9001 specification pipe size, installation temperature and operating temperature. The manufacturer's quality assurance manual must be available upon request.
- D. Written procedures must be maintained for each of the following categories:
 - 1. Identification and control of materials.
 - 2. Drawing and document control.



3. Manufacturing and process control.
4. Welding qualifications and procedures.
5. Testing, inspection and documentation.
6. Preparation for delivery.

PART 2 - PRODUCTS

2.1 RUBBER EXPANSION JOINTS

- A. Provide rubber expansion joints of the spherical molded type with 150 lb. steel flanges and permanently attached control cables or rods.
- B. Construct the body of multiple layers of neoprene and bias-ply tire cord reinforcing.
- C. Cables to be galvanized aircraft cables permanently affixed to flanges to prevent joint from extending past its limit.
- D. Control rods to be steel with adjusting nuts. Length of rod to restrain joint from extending beyond joint limit.

2.2 FLEXIBLE METAL HOSE

- A. Construct metal hose of corrugated, close pitch hose of bronze with bronze braid annular close pitch hose of 304 stainless steel with 304 stainless steel braid.
- B. End fittings to be 150 lb. flanges.
- C. Maximum working pressures not to exceed 200 psig.
- D. Maximum length 18".

2.3 PIPE GUIDES

- A. Spider Guides
 1. Construct spider guides of carbon steel throughout carbon steel housing and copper spider with Teflon edges.
 2. Both spider and outer housing to be formed as (2) bolted halves.
 3. Select size of guides to include insulation when guiding insulated pipe.
 4. Spider guides to be pre-insulated with a section of hydrous calcium silicate extending at least 1" beyond each side of spider.



5. For riser guides, provide "arms" of sufficient length to contact floor slab or other support a minimum of 3" on each side.

B. Slide Guides

1. Construct body and base of slide guides of carbon steel.
2. Slides to be steel with teflon on teflon graphite on graphite sliding surfaces.
3. Provide slides with gusset plates on 6" and larger sizes.

C. Radiation Pipe Guides

1. Provide 3/16" steel "L" brackets slotted on both legs to accommodate maximum adjustment in horizontal and vertical planes.
2. Provide thermal resistant nylon guide surrounding tubing and attached to brackets with 1/4" diameter bolts.

2.4 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufacturers specified:

1. Keflex
2. Flexway
3. Senior Flexonics Pathway
4. Advanced Thermal Systems
5. Yarway
6. Adsko
7. STS Industrial
8. Metraflex
9. Or approved equal

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Install joints at correct length as specified by manufacturer for each location so that unit will work within specified limits.
- C. Provide adequate anchoring and guiding.
- D. Pre-compress joints per manufacturer's recommendation when installing in cold water piping.
- E. Pre-extend joints per manufacturer's recommendation when installing in hot water or steam piping.



- F. Align joint flange and pipe flange holes. Do not try to compensate for flange or pipe misalignment by putting any torsional, compressive, extension, or offset loads on the expansion joint.
- G. Remove shipping restraints after installation, but before hydrotesting.
- H. All installation procedures to conform to EJMA Safety Recommendations.

3.2 RUBBER EXPANSION JOINTS

- A. Use only in systems where temperatures do not exceed manufacturer's recommendation at any operating condition.
- B. Use only in fully accessible locations where not concealed.
- C. Protect joint at all times during construction of project. Replace all damaged joints.

3.3 FLEXIBLE METAL HOSES

- A. Use only at pump inlets and outlets.
- B. Install in a straight line with no offsets.
- C. Support piping so that no weight is on the hose.
- D. Do not use bronze construction in piping over 4".

3.4 PIPE GUIDES

- A. Insulated piping to be provided with a section of calcium silicate, same thickness as required insulation, with aluminum jacket to extend 1" beyond each end of spider guide.
- B. Guides to be welded or bolted to structure.
- C. Slide guides to be welded to pipe along full length of contact surface. On insulated pipe, weld slide guide to metal shield with shield welded to pipe.

END OF SECTION 23 05 16



**SECTION 23 05 19
METERS AND GAUGES FOR HVAC PIPING AND 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 WORK INCLUDED

- A. Thermometers and Temperature Wells.
- B. Hydronic Pressure Gauges.
- C. Test Plugs.
- D. Air Pressure Gauges.
- E. Light-activated Thermometers.
- F. Gauge Attachments.
- G. Test-plug Kits.
- H. Sight Flow Indicators.
- I. Flowmeters.
- J. Thermal-energy Meters.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit an overall schedule of instruments to be utilized for the project indicating service and instrument model number.
- C. Submit a line-by-line statement of compliance, meeting the intent, non-compliance or not, available for each clause of this specification.
- D. Product Data: Submit manufacturer's latest published data for instrument types, materials, accessories and installation.



- E. Shop Drawings: Submit shop drawings of instrument display boards, along with other shop or field fabricated installations.

1.4 QUALITY ASSURANCE

- A. Instruments are to be factory calibrated for the temperature and pressure of the systems in which they are installed.
- B. Instruments to be industrial quality.

PART 2 - PRODUCTS

2.1 THERMOMETERS AND TEMPERATURE WELLS

- A. Provide duct thermometers of the dial face type, 3" diameter, bimetal hermetically sealed. Accuracy is to be factory calibrated to $\pm 1^\circ\text{F}$, for the average temperature of the system in which it is installed. Construction to be stainless steel with external calibration adjustment.
- B. Provide pipe insertion thermometers of the 9" blue liquid reading scale, 2°F increments separable socket, adjustable angle with brass socket. Provide the following socket lengths:

Pipe Size	Insertion Length
4" and 5"	2½"
6" and 8"	5"
10" and over	7"

- C. Provide pipe surface mount 2" diameter thermometers of the strap on, spring held type with insulating cup. Spring shall be stainless steel shall be heat-treated bimetallic.
- D. Provide thermometers with ranges as follows:
 1. Duct Systems: 0° to 160°F.
 2. Chilled Water Systems:
 - a. Glass: 0° to 120°F.
 - b. Dial: 0° to 150°F
 3. Condenser Water Systems:
 - a. Glass: 0° to 120°F.
 - b. Dial: 0° to 150°F



4. Hot Water Systems:
 - a. Glass: 30° to 240°F
 - b. Dial: 50° to 300°F
5. Secondary Water Systems:
 - a. Mercury: 30° to 240°F
 - b. Dial: 0° to 300°F
6. High Temperature Hot Water Systems:
 - a. Mercury: 50° to 550°F
 - b. Dial: 50° to 550°F

E. Manufacturers

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Weiss
 - b. Terice
 - c. Taylor
 - d. Ashcroft
 - e. Weksler
 - f. Miljoco
 - g. Moeller
 - h. Or approved equal

2.2 PRESSURE AND COMPOUND GAUGES

- A. Provide gauges of the bourdon tube type or phenolic with minimum 4-1/2" dial and die cast aluminum case with black enamel finish. Gages shall have safety blow-out back. The movement to be all stainless steel with Grade A phosphor bronze bourdon tube brazed at socket and tip. Provide accuracy of the gauge within 1/2% of the scale range. The pointer will be the micrometer adjustment type recalibrated from the front.
- B. Pressure gauges installed at pumps shall be liquid-filled type.
- C. Provide needle-type isolation valves at each pressure gauge.



D. Manufacturers

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Weiss
 - b. Trerice
 - c. Taylor
 - d. Ashcroft
 - e. Weksler
 - f. Miljoco
 - g. Moeller
 - h. Or approved equal

2.3 TEST PLUGS AND KITS

- A. Provide test plugs ½" NPT made of brass body and cap with Nordel core.
- B. Provide kit consisting of:
 1. (1) ¼" NPT pressure gauge with minimum 4" dial face with a range of 0 psi to 150 psi,
 2. (1) ¼" NPT compound gauge with minimum 4" dial face with a range of – 15 psi to +30 psi,
 3. (2) Ball valves, (1) needle valve, (3) ¼" coupling adaptors, (3) ½" x ¼" bushings,
 4. (3) ¾" x ¼" bushings, (3) 3-foot long flexible hoses with female threaded swivel couplings, auxiliary test cock, (1) stainless steel 1" dial face stem thermometer minimum 4" long with a range of 0° to 220°F, (1) adjustable angle stainless steel stem thermometer with minimum 3" dial face with 4" stem with a range of 25° to 125°F.
 5. A shock resistant molded plastic case with foam inserts and carrying strap.



C. Manufacturers

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:

- a. **Test Plugs**

- 1) MG Piping Products
 - 2) Ernst
 - 3) Weksler
 - 4) Texas Fairfax
 - 5) Or approved equal

- b. **Test Kits**

- 1) Gage IT, Inc.
 - 2) Tel Tru
 - 3) PTC
 - 4) Weksler
 - 5) Weiss
 - 6) Or approved equal

2.4 AIR PRESSURE GAUGES

- A. Magnehelic Gauge: 4" dial with frictionless magnetic movements. Gauge to operate without use of fluid. Range to be compatible with service. Accuracy $\pm 2\%$ of scale. Die cast aluminum case with clear plastic face and "O" ring seal. Diaphragm to be silicone rubber with cobalt magnet and sapphire bearings.
- B. Pressure Gauge: Low internal volume spiral/helical coil bourdon tube with solid front and rear blowout plug. "C" tubes will not be accepted. Gauges to be tapped $\frac{1}{4}$ " NPT back and bottom. Accuracy to be 2% over full range.



- C. Manufacturer
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Dwyer
 - b. Trerice
 - c. Orange Research
 - d. Or approved equal

PART 3 - EXECUTION

- A. Refer to DDC General Conditions.
- B. Provide local panel for mounting of duct thermometers located next to air handler which it serves. Locate panel so that length of capillary tubing is held to a minimum. Mount panel on supports fastened securely to structure. Thermometers to be provided in each system as follows:
 - 1. Upstream of each heating coil bank. Range 0 – 100F
 - 2. Downstream of each heating coil bank. Range 0 – 160F
 - 3. Upstream of each cooling coil bank. Range 0 – 100F
 - 4. Downstream of each cooling coil bank. Range 0 – 100F
 - 5. At each return air fan inlet. Range 0 – 100F
 - 6. At each supply air fan discharge. Range 0 – 160F
 - 7. At each supply air fan inlet. Range 0 – 160F
 - 8. At each outside air intake. Range – 40 to 160F
 - 9. Where shown on Contract Documents.
- C. Provide pipe thermometers and thermometer wells in the inlet and outlet at each of the following locations:
 - 1. Heat exchanger. (both sides)
 - 2. Chilled water coil.
 - 3. Hot water coil.



4. Refrigeration machine evaporator and condenser.
 5. Hot water boiler.
 6. Where shown on the Contract Documents.
- D. Test plugs to be provided at inlet and outlet of each water coil (including unit heaters, cabinet heaters, fan coil units, etc.).
- E. Provide pressure gauges at the following locations:
1. Upstream and downstream of all coils, strainers, controls valves and pumps, heat exchangers, refrigeration machines (evaporator condenser, hot water generator), steam boiler, cooling tower.
 2. Chiller plant chilled water supply and return.
 3. Secondary chilled water supply and return piping.
 4. Steam header leaving the boiler plant.
 5. Where shown on contract drawings.
- F. Provide differential pressure gauges piped and mounted at an observable location in the following locations:
1. Chilled water headers serving individual secondary chilled water zones distribution.
 2. Chilled water headers at chiller.
 3. Condenser water headers at chiller.
- G. Provide air pressure gauges at the following locations:
1. Upstream and downstream of all filter banks, coils.
- H. Install recording instruments as described herein:
1. Install instruments flush mounted on a 10 gauge steel display panel complete with supports and braces. Submit the entire panelboard and arrangement for approval prior to fabrication.
 2. Locate measuring instruments at the point of measurement with a signal transmitted to receiving instruments, for indicating and recording, mounted on the display panel.

END OF SECTION 23 05 19



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**SECTION 23 05 23
VALVES**

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

- A. Provide valves in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Globe Valves.
- B. Y-Pattern Globe Valves.
- C. Non-Lubricated Plug Valves.
- D. Check Valves.
- E. Ball Valves.
- F. Butterfly Valves.
- G. Automatic Flow Control Valves.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Valve List: Figure numbers and catalog cuts of proposed valves.
- C. Product Data: Manufacturer's latest published data for materials, intended service and installation.

1.5 QUALITY ASSURANCE

- A. Valves and valve construction to be suitable for the pressure, temperature, and fluid quality of the service in which they are to be used.
- B. All valves to be in accordance with ANSI, AWWA, ASTM, MSS-SP-70 & 80 (Manufacturers Standardization Society), and ASME standards and specifications.



- C. Minimum test pressure for all valves to be 1.5 times maximum system working pressure unless noted otherwise.
- D. Provide butterfly valves suitable for dead end service and constructed of high quality industrial design.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide valves of the same manufacturer throughout where possible.
- B. Provide valves with manufacturer's name and pressure rating clearly marked on the outside of body.
- C. Provide valves suitable for connection to adjoining piping as specified for pipe joints.
- D. All valves to be full pipe size unless noted otherwise.
- E. Provide all valves used for future connection with lockable handles.

2.2 GLOBE VALVES

- A. Use for throttling in steam and water systems.
- B. 2" and smaller valves bronze body and trim with rising stem, screwed bonnet with screwed ends for steel piping and sweated ends for copper piping.
- C. Globe valves to be suitable for repacking under pressure. Packing to be non-asbestos.
- D. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Grinnell
 - b. Crane
 - c. Hammond
 - d. Milwaukee
 - e. Stockham
 - f. Nibco
 - g. Or approved equal.



2.3 Y-PATTERN GLOBE VALVES

- A. Use for throttling in water service ½" to 12".
- B. Provide valves of Y-Pattern design suitable for water temperatures to 250°F. Provide valves with provision for connecting a portable differential pressure meter. Each meter connection to have pressure/temperature readout points.
- C. Construct valves up to 2" of pressure die cast nonporous copper alloy and 2½" and over of cast iron body and nonferrous copper alloy, with Teflon disc.
- D. Valves to be omnidirectional without affecting flow measurement and shall provide precise flow measurement, precision flow balancing, positive shut-off with no drip seat.
- E. Construct valves so that 4 full turns of handwheel provides maximum setting with hidden memory feature and tamper proof balancing setting.
- F. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Tour & Anderson
 - b. Armstrong
 - c. Velan
 - d. Or approved equal.

2.4 NON-LUBRICATED PLUG VALVES

- A. Use for throttling in water service 2½" and larger.
- B. Provide valves of the non-lubricated bolted bonnet type with resilient faced plugs suitable for water systems to 250°F.
- C. Provide port area of valves through 20" at least 80% of full pipe area.
- D. Valve bodies of ASTM A126 Class B semi-steel with corrosion resistant seats of 90% nickel overlay.
- E. Furnish valves with replaceable, sleeve-type springs, washers, etc., zinc plated.
- F. Valves through 6" provided with an adjustable open position "memory stop" and level. Valves 8" and larger equipped with a totally enclosed worm and gear operator with handwheel and a "memory stop."



2.5 CHECK VALVES

- A. Swing Type: Use for water and low pressure general services: 2" and smaller with screwed bonnet, screwed end for steel piping and sweated end for copper piping; 2½" and larger with bolted bonnet, flanged end. Valves to have renewable bronze seat and disc.
- B. Silent Type: Use on pumps with cycling control and larger than 2" discharge. Valves to have cast iron body with bronze or stainless steel trim and to be of the center guide type, with flanged end.
- C. Wafer Type: Provide wafer type check valves for use in pipe 24 inches diameter and larger. Check valves to be wafer type with steel body and discs, and flanged ends.
- D. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Grinnell
 - b. Crane
 - c. Milwaukee
 - d. Hammond
 - e. Nibco
 - f. Or approved equal.

2.6 BALL VALVES

- A. Use for stop, isolation and as drain valves, in water systems up to 200°F and pipe sizes to 3".
- B. Provide ball valves of the bronze top-entry body type, having a straight-through full port flow passage. Design to permit disassembly without removing body from line.
- C. Construct seats and all gland packing of Teflon. Lever handle to be vinyl covered. Body to be 2-piece screwed end for steel piping and sweated end for copper piping.
- D. Provide lever for quarter turn operation; lever to indicate open or closed position.
- E. When used as drain valves, provide with hose thread and brass cap with chain. Cap to be rated for full system pressure.



F. Manufacturers

1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Apollo
 - b. Nibco
 - c. Stockham
 - d. DeZurik
 - e. Or approved equal.

2.7 HIGH PERFORMANCE BALL VALVES

- A. Use for stop, isolation and as drain valves, in water systems up to 400°F and pipe sizes to 3".
- B. Provide high performance ball valves of the stainless steel top-entry body type, having a straight-through full port flow passage. Design to permit disassembly without removing body from line. Body to be 2-piece screwed end.
- C. Shafts to be constructed of 316 stainless steel with stellite surfaced bearing areas. Shaft bearing to be ceramic filled TFE.
- D. Construct seats of stellite faced 316 stainless steel and all gland packing of ceramic filled multiple V-ring TFE.
- E. Provide lever for quarter turn operation; lever to be vinyl covered and indicate open or closed position.
- F. When used as drain valves, provide with hose thread and brass cap with chain. Cap to be rated for full system pressure.
- G. Manufacturers
 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Apollo
 - b. Nibco
 - c. Stockham
 - d. DeZurik
 - e. Or approved equal.



2.8 BUTTERFLY VALVES

- A. Use for stop and isolation in water systems up to 200°F and pipe sizes 2½" and larger.
- B. Butterfly valves to have ductile iron lug body, 316 stainless steel stem with bronze bushings and aluminum bronze disc.
- C. The stem journals will be a multiple seal design providing for completely independent seals. The stem disc assembly will be such that the need for pins, screws or bolts is not required. Positive stem retention to be provided to permit removal of handle or actuator while under full operating pressure.
- D. The valve seats to consist of replaceable resilient elastomer.
- E. Valves to size 6" to be supplied with multi-position handles; size 8" and over to be supplied with enclosed worm gear operator.
- F. Valve body to be full-lug pattern to comply with MSS-SP-67 and be compatible with ANSI pattern flanges of appropriate pressure rating.
- G. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Bray
 - b. Grinnell
 - c. Jamesbury
 - d. Centerline
 - e. Keystone
 - f. Nibco
 - g. Or approved equal.

2.9 HIGH PERFORMANCE BUTTERFLY VALVES

- A. Use for stop and isolation in water systems up to 400°F and pipe sizes 2½" and larger.
- B. Butterfly valves to have steel lug body, one piece 316 stainless steel stem with bronze bushings and 316 stainless disc with chrome plated seating edge. Drive end of shaft to be squared to provide positive actuator connection.



- C. The stem journals will be a multiple seal design providing for completely independent seals. Positive stem retention to be provided using solid type 316 stainless steel keys locked in place, to permit removal of handle or actuator while under full operating pressure.
- D. Design discs with a concave face to reduce dynamic torque, decrease turbulence and maximize flow capacity.
- E. Provide disc-to-shaft pins of stainless steel and of the tangential or compressive type. Pins shall be subject to compression forces only, no shear forces.
- F. The valve seats to consist of replaceable PTFE seating surface with a titanium retaining ring.
- G. Shaft bearings to be of reinforced PTFE and thrust bearing to be a combination of reinforced PTFE with 316 stainless steel.
- H. Provide packing of multiple PTFE V-ring design with adjustable gland follower and 316 stainless gland.
- I. Valves to size 6" to be supplied with multi-position handles; size 8" and over to be supplied with enclosed worm gear operator.
- J. Valve body to be full-lug pattern to comply with MSS-SP-67 and be compatible with ANSI pattern flanges of appropriate pressure rating.
- K. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. DeZurik
 - b. Flow Seal
 - c. Contromatics
 - d. Or approved equal.

2.10 AUTOMATIC FLOW CONTROL VALVES

- A. Provide automatic pressure-compensating flow control valves with extended valve body and dual temperature/pressure test ports. Provide performance certification of valves by an independent laboratory to the Commissioner.
- B. Valve to be manufactured in one piece and to consist of ground joint union, flow control and test plugs.
- C. All valves to be factory set to control the flow rate within 4 percent of the selected rating over an operating pressure differential of at least 10 times the minimum required for full flow conditions.
- D. Valves to be brass and stainless steel with threaded or sweat connections.



- E. Provide all valves with unions to allow field exchange of internal components without removing the valve body from the pipeline.
- F. Mark all valves in a permanent manner to show direction of flow and flow rate.
- G. Provide valves rated for a minimum of 350 psi, or as necessary to meet the design conditions of the piping system.
- H. Provide test plugs with dual valve cores for pressure and temperature monitoring.
- I. Confirm the valve design flow rate by establishing that the pressure drop is within the valves' specified pressure range.
- J. Manufacturers
 - 1. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the manufactures specified:
 - a. Autoflow
 - b. Griswold
 - c. Bell & Gossett
 - d. Or approved equal.

2.11 VALVE LIST

- A. The following is a listing of representative figure numbers by service, indicative of the product quality required.
- B. Water Services

Service	Type	Size	Nibco Fig. No. (Crane, Bray, Keystone or approved equal)	DeZurik Fig. No. (Crane, Bray, Keystone or approved equal)
Cellar and Above to 150 psi	Globe	1½ to 2 in.	T-235Y	-
	Globe	2½ to 10 in.	F-718B	-



Service	Type	Size	Nibco Fig. No. (Crane, Bray, Keystone or approved equal)	DeZurik Fig. No. (Crane, Bray, Keystone or approved equal)
	Plug	2½ to 24 in.	-	118
	H.P. Ball	To 2 in.	-	551
	H.P. Butterfly	2½ to 36 in.	-	BHP-L1
	Check-Swing	To 2 in.	T-433-B	-
	Check-Swing	2½ to 12 in.	F-918B	-
	Check-Silent	All	F/W 910/960	-

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Install valves so that they are accessible for repacking.
- C. Install with stem vertical and handle up wherever possible, never with stem below horizontal position.
- D. Install with operating clearance for handle and stem.
- E. Install isolation valves on equipment so that valve and piping do not interfere with equipment removal or maintenance. Install unions or flanges on equipment side of valves.
- F. Provide 1" drain valves with threaded ends for hose connections at drain points, at main shutoff valves, low points of piping systems, bases of vertical risers, and at equipment.
- G. Provide required manual or automatic vent valves at high points of piping systems to facilitate venting of air and to ensure quiet operation.
- H. Provide renewable bronze seat rings and bronze spindles for cast iron body valves.
- I. Provide chain operated sheaves and chains for all valves which are more than 8 feet above the floor in Mechanical Equipment Rooms.



- J. Furnish and install other valves, check valves, cocks, etc., as required for the complete and proper valving of the entire installation.
- K. Install butterfly valves in horizontal piping with stem in the horizontal position so that bottom of disk lifts in the direction of flow.
- L. Install butterfly valves in vertical piping at pumps with stem perpendicular to pump shaft.

END OF SECTION 23 05 23



**SECTION 23 05 29
HANGERS, ANCHORS AND SUPPORTS**

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

- A. Provide hangers, anchors and supports in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Hangers.
B. Structure Attachments.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
B. Shop Drawings: Submit details of pipe hangers, anchors and supports for each pipe size and pipe service. Submit details of support methods and point loadings, and anchor reactions.
C. Product Data: Manufacturer's latest published data for materials, equipment and installation.

1.5 QUALITY ASSURANCE

- A. Hangers and supports to be constructed and applied according to the following standards:
1. Manufacturer's Standardization Society MSS SP-58, SP-69 and SP-89.
 2. Power Piping Code, ANSI B31-1.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide hangers of heavy construction suitable for the size of pipe to be supported. All materials to be of steel, except rollers which are to be of wrought or malleable iron. Hangers for pipes up to and including 5 inches to be adjustable swivel ring, split ring, wrought pipe clamp, or adjustable wrought clevis type.



Hangers for pipes 6 inches and above to have 2 rods and cross-rod with cast iron pipe roll complete with adjustable sockets and nuts.

- B. Support vertical piping with double bolt riser clamps attached to the pipe, resting on the floor slab. In general, use one clamp for each two floors and one clamp at each floor for copper tubing. Where pipes are in open shafts, provide forged steel bar brackets fixed to wall.
- C. Support vertical piping risers on base elbow supports. Supports to be no less than one pipe size smaller than riser.
- D. The following tables will establish a minimum level of acceptance for pipe hangers, supports and attachments.

1. Hangers and Supports

Service	Hanger Type	Basis of Design Figure No. (or approved equal see section 2.5)	Maximum Pipe Size
Uninsulated Steel	Clevis	260	5"
Uninsulated Copper	Clevis	CT-65	4"
All (Steel Pipe)	Riser Clamp	261	20"
(Copper Pipe)	Riser Clamp	CT-121	4"
All Insulated	Roller Hanger	171	24"
Chilled & Condenser Water	Base Plate & Roll	277	24"
Hot Water, Steam and Steam Condensate	Base Plate & Roll	274	24"
All	Trapeze	46	24"
All	Wall Bracket	195	5"
All	Wall Bracket	199	12"



2. Structure Attachments

Type	Basis of Design Figure No. (or approved equal see section 2.5)	Maximum Rod Size (Inches)	Maximum Pipe Size
Beam Clamp	218	7/8	8"
Beam Clamp	228	1½	24"
Side Mount Clamp	225	7/8	8"
Channel Clamp	226	7/8	8"
Expansion Shield	281	7/8	8"

2.2 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufactures specified:
1. Grinnell (Basis of Design)
 2. Pipe Shields Inc.
 3. C&S Manufacturing
 4. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Support horizontal piping in accordance with the following schedule:

Pipe Size	Maximum Hanger Spacing	Rod Size
1" and smaller	6'-0"	3/8"
1¼" to 2"	9'-0"	3/8"
2½" to 3"	10'-0"	1/2"
4" to 5"	12'-0"	5/8"



Pipe Size	Maximum Hanger Spacing	Rod Size
6"	12'-0"	3/4"
8" to 12"	12'-0"	7/8"
14" to 16"	12'-0"	1"
18"	12'-0"	1-1/8"
20"	12'-0"	1-1/4"
24"	12'-0"	1-1/2"

- C. Provide hangers at each change in direction and both sides of each valve.
- D. Support hangers from concrete inserts or beam clamps. Furnish, locate and set such inserts and make sure that such inserts are in place when the concrete is poured. Construct inserts of malleable iron or pressed steel with space for rods of all sizes. Install all inserts for pipes 3" and larger in size with a reinforcing rod 5/8" in diameter run through a slot in the insert specifically provided for this purpose.
- E. If any pipe is to be hung in a space where no inserts have been provided, drill holes in the slab (subject to the Commissioner's prior approval) and provide rods and hanger attached to an approved fishplate or install double expansion shields connected by a 2" x 2" angle, from which the hanger rod is to be suspended. For pipe size 2" and under, use single shields but the hanger spacing defined hereinbefore to be reduced to 5'-0". The carrying capacity and size of each shield to be calculated on the basis of the spacing indicated above but the minimum size to be 3/8". Install additional shields of the same size so that the number of hangers are of adequate size to support the loads which they carry. Shields may be used in concrete slabs only.
- F. Regardless of the type of construction (i.e., concrete, concrete-deck-steel or other variations) take particular care to support all main lines and all large and heavy pipes in an approved manner, including the furnishing and installation of supplementary steel, if required. Supplementary steel sections are to be mill-rolled. Submit shop drawings, indicating support methods, point loadings to the building structure and hanger locations for review sufficiently in advance of concrete pouring schedules to permit evaluation, critique and any necessary changes to handling and support methods.
- G. Set all inserts for all pipes in ample time to allow concrete work to be performed on scheduled time.
- H. Hangers may be directly attached to steel beams of building construction, where they occur, if approved by Commissioner. Smaller pipes may be suspended from crosspieces of pipe or steel angles, which in turn, are to be securely fastened to building beams or hung from building concrete construction by means of rods and inserts. The intention is to provide supports which, in each case, will be amply strong and rigid for the load, but which will not weaken or unduly stress the building construction.



- I. Provide approved roller support, floor stands, wall brackets, etc., for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or walls. Pipelines near walls may also be hung by hangers carried from approved wall brackets at a level higher than the pipe.
- J. Do not hang piping from other piping. Support of hangers by means of vertical expansion bolts is not permitted.
- K. Wherever hangers using pipe rolls are used provide approved steel pipe covering protection saddles, spot welded to the piping at each hanger location. Vapor barrier jackets to cover shield.
- L. Anchor piping where shown on Drawings and as required to localize expansion or to prevent undue strain on piping and branches. Anchors to be entirely separate from hangers. All anchor designs to be submitted for approval and to include piping reactions which respective anchors are capable of supporting. Provide all indicated or required expansion loops.
- M. Support all lines of copper tubing individually by approved type hangers not more than 6' apart, or as shown on the drawings. Use hangers especially designed for copper tubing and of exact outside diameter of tubing. On hangers for covered tubing, use broad straps fitting outside of covering.
- N. Hangers used for cold piping will support the pipe without piercing the insulation. Use insulation shields to protect the insulation on cold pipes. Weld insulation protection saddles to insulated hot pipes, or any piping subject to axial movement, at roller supports. Space between pipe and saddle to be filled with insulation. Wherever fibrous glass pipe insulation is installed, install calcium silicate of equal thickness in lieu thereof, wherever hangers and insulation shields bear on insulation. Vapor barrier jackets to cover shields.
- O. For piping 4" and larger, support the elbows of the piping adjacent to the pumps with steel base elbow supports from the inertia base which pump is on to prevent loading heavy weights of piping on pump casing. Where inertia base is not provided, base elbows to be supported on floor with 1" neoprene pad.

3.2 ATTACHMENTS TO EXISTING STEEL DECK SLAB

- A. Attachments to existing steel deck to be limited to loads of 500 lbs. Heavier loads to be supported by supplementary structural steel connected to structural beams. Provide all required supplementary steel.
- B. Attachments with loads only up to 500 lbs. is to be accomplished by drilled-in expansion shield type anchors located on the center line of the concrete filled ribs.
- C. 500 lb. load attachments must not be spaced less than 5'-0" apart, and are to be located as close to steel beams as possible.
- D. Furnish and locate sleeves, cut holes through deck, reinforce deck, and set sleeves. Coordinate sleeve locations with deck subcontractor and electrical distribution. Submit drawings showing location of holes and proposed reinforcing for approval before proceeding with installation.

END OF SECTION 23 05 29



**Department of
Design and
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**SECTION 23 05 40
ACOUSTICS**

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

- A. Provide acoustical treatment in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Sound-Lining.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings
1. Sound-Lining.
 2. Certification that sound-lining meets erosion test method described in U.L. Publication No. 181 erosion test method.
 3. Non-hardening caulking.

1.5 QUALITY ASSURANCE

- A. Acoustical Criteria
1. Noise levels, due to equipment and ductwork, to permit attaining sound pressure levels in all 8 octave bands in occupied spaces will conform to the following NC curves:
 - a. Lobbies, corridors, toilets, spaces within 10 feet of duct penetrations through walls and floors of fan rooms: NC-40.
 - b. Auditorium: NC-30.
 - c. Classrooms:
 - 1) Small: NC-35.



- 2) Large: NC-30.
 - d. Conference Rooms:
 - 1) Small: NC-35.
 - 2) Large: NC-30.
 - e. Executive Offices: NC-30.
 - f. All other spaces: NC-35.
2. In addition to complying with the standard full octave band sound pressure levels based on NC criteria, acoustical performance of fans, air handling units, terminal devices, pressure regulating boxes, etc., when operating under design conditions shall not create any objectional pure tones. A pure-tone is defined as a peak sound pressure level which, when measured in 1/3 octave band frequencies, is higher by more than 5 dB's than adjacent 1/3 octave band frequencies.
 3. Comply with specified NC levels for radiated noise from pressure regulating boxes and/or duct breakout noise from floor-by-floor air handling equipment by having full octave band sound pressure levels of at least two contiguous frequencies tangent to the NC spectrum. In other words, a single frequency controlled NC environment is considered obtrusive and unacceptable.

B. Mechanical Performance

1. Air distribution system equipment; terminal device noise:
 - a. Maximum permissible sound-power levels in octave bands of airborne transmissions through the combination of grilles, registers, diffusers, and terminal units, or related pressure reducing devices, when operated in installed condition per Plans and Specifications is as follows:

Octave Bands	Maximum PWL re 10 ⁻¹² Watts				
	NC-30	NC-35	NC-40	NC-45	NC-50
1	58	62	66	68	70
2	52	56	60	63	66
3	45	49	54	58	62
4	41	46	51	56	61
5	38	43	48	53	58
6	37	42	47	52	57
7	36	41	46	51	56



Octave Bands	Maximum PWL re 10 ⁻¹² Watts				
	NC-30	NC-35	NC-40	NC-45	NC-50
8	37	42	47	52	57

2. Provide sound-lining in accordance with U.L. 181.
3. Provide all materials in accordance with NFPA and U.L.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sound-Linings

1. Fiber glass.
2. Facing for Low Pressure Duct Liner:
 - a. Finish: Neoprene coated.
 - b. Stenciled NFPA 90.
3. Facing for duct liner downstream of local floor equipment room walls for a distance of 15 feet, and all ducts with velocities over 2500 FPM.
 - a. Finish: Perforated, 28 percent minimum open area, 24 gauge galvanized steel.
4. Thickness:
 - a. In ductwork: minimum 1 in. unless otherwise noted on drawings.
 - b. In plenums and in supply duct downstream of local floor equipment rooms: minimum 2 inches, 3 pound density, semi-rigid.
 - c. For sound-lining used as thermal insulation minimum thickness shall conform to requirements as specified in Section on Insulation.
 - d. Linear Diffuser Supply Plenums: Minimum ½", 1½ lb. density.
5. Minimum density: 1½ lb. per cu. ft. in ducts. 3 lb. per cu. ft. in plenums.
6. Flamespread: Maximum 25.
7. Fuel Contributed and Smoke Developed: Maximum 50.



8. Suitable for duct velocity of 4000 fpm. Meet erosion test method described in U.L. Publication No. 181.
9. Dynamic Loss Coefficient: Maximum 1.2.
10. K Factor: Maximum .25 Btu/hr./°F/in.
11. ASTM Noise Reduction Coefficient (NRC) for 1 inch thick lining: minimum 0.70.

B. Adhesive and Sealer

1. Adhesive: Benjamin Foster 85-20, Certainteed, John-Manville or approved equal.
2. Sealer: Benjamin Foster 85-20 Certainteed, John-Manville or approved equal.

C. Non-Hardening Caulking

1. Guaranteed to be permanently elastic.
2. Polybutene type

2.2 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufactures specified:
- B. Sound-Linings
 1. Certainteed Products Corp.
 2. Johns-Manville Corp.
 3. Owens-Corning Fiberglas Corp.
 4. Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to DDC General Conditions
- B. In order to obtain satisfactory acoustical performance of the terminal devices, complete the following:
 1. Proper duct connections at inlet to the terminals.
 2. Proper air-balancing.



3. Avoid excessive dampering right at the terminals.
- C. Sound-Linings
1. Adhere with 6 in. wide strips of adhesive.
 - a. 12 in. on centers.
 - b. At joints in lining.
 2. In addition, secure with weld pins and 2-in. diameter washers on maximum 16 in. centers.
 3. Coat all edges with sealer and caulk all butt joint seams.
 4. Provide continuous sheetmetal edge protection at entering and leaving edges of lined duct sections and all joints.
 5. Dimensions of lined ductwork are clear inside dimensions after lining has been installed.
 6. Extent of Ductwork Sound-Linings:
 - a. Air-Conditioning Systems:
 - 1) Supply: Ductwork within mechanical equipment rooms not less than 25 feet from fan. Downstream of local floor MER walls.
 - 2) Return: Ductwork in mechanical equipment rooms but not less than 25 feet from fan.
 - b. Outside air supply systems a minimum distance of 25 feet downstream of fan.
 - c. Ventilation Systems: As indicated on Drawings.
 - d. Exhaust Systems: As indicated on Drawings.
 - e. Ductwork downstream of:
 - 1) Terminal Units: Minimum 10 feet or as per manufacturer's recommendations.
 - f. Minimum lengths shown. Provide additional acoustical treatment as required to meet maximum permissible sound-power levels scheduled for equipment.
 7. Sound-Lined Plenums: As indicated on Drawings.
 8. All transfer and jumper ducts.
 9. All linear diffuser supply plenums.



D. Soundproofing of Construction

1. Required for packing between ductwork and the following construction:
 - a. Equipment room walls.
 - b. Floors, except in shafts.
 - c. Sound barrier ceilings.
2. Soundproofing:
 - a. Fill openings with fiber glass blanket or board for full depth of penetration.
 - b. Caulk each side of opening with non-hardening, non-aging caulking compound Johns-Manville "Duxeal", Certainteed, Owens Corning or approved equal..
3. Soundproofing may be deleted when firestopping material is provided.

E. Ductwall External Soundproofing

1. Extent:
 - a. Vane axial fans including their inlet and discharge transitions and sound attenuators.
 - b. Where indicated on Drawings.
2. Soundproofing Material:
 - a. Fiber Glass:
 - 1) Board: 6 lb./cu. ft. density.
 - 2) Thickness: ½ in. greater than height of ductwork angles, but 2 in. minimum.
 - b. External Jacket:
 - 1) Lead Sheet:
 - a) Overlapped 2 in.
 - b) Secured with tape.
 - c) Weight: 1 lb. per sq. ft.
 - d) Thickness: 1/64 inch.

END OF SECTION 23 05 40



**SECTION 23 05 48
VIBRATION ISOLATION**

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

- A. Provide vibration isolation in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Vibration isolation elements for piping and equipment.
- B. Equipment isolation bases.
- C. Seismic restraints.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Manufacturer's Data
 - 1. Catalog cuts and data sheets on specific vibration isolators to be utilized showing compliance with the specifications.
 - 2. An itemized list showing the items of equipment or piping to be isolated, the isolator type of model number selected, isolator loading and deflection, and reference to specific drawings.
 - 3. An itemized list of non-isolated equipment, piping, and ductwork to be seismically restrained.
 - 4. Seismic restraint calculations.
 - 5. Written approval of the base design to be obtained from the equipment manufacturer.
- C. Shop Drawings
 - 1. Drawings showing equipment base constructions for each machine, including dimensions, structural member sizes and support point locations.
 - 2. Drawings showing methods of suspension, support guides for piping and ductwork.



3. Drawings showing methods for isolation of pipes and ductwork piercing walls and floor slabs.
4. Concrete and steel details for bases including anchor bolt locations.
5. Number and location of seismic restraints and anchors for each piece of equipment and of ductwork and piping.
6. Specific details of restraints, including anchor bolts for mounting and maximum loading at each location for each piece of equipment and lengths of ductwork and piping.
7. Provide installation instructions, drawings and field supervision to assure proper installation and performance.

1.5 QUALITY ASSURANCE

- A. Provide control of excessive noise and vibration in the buildings due to the operation of machinery or equipment, and/or due to interconnected piping, ductwork or conduit. Installation of vibration isolation units, and associated hangers and bases, under the direct supervision of the vibration isolation manufacturer's representative.
1. All vibration isolators shall have either known undeflected heights or calibration markings so that, after adjustment, when carrying their load, the deflection under load can be verified, thus determining that the load is within the proper range of the device and that the correct degree of vibration isolation is being provided according to the design.
 2. All isolators shall operate in the linear portion of their load versus deflection curve. Furnish load versus deflection curves linear over a deflection range of not less than 50% above the design deflection.
 3. The ratio of lateral to vertical stiffness to be not less than 0.9 nor greater than 1.5.
 4. The theoretical vertical natural frequency for each support point, based upon load per isolator and isolator stiffness shall not differ from the design objectives for the equipment as a whole by more than $\pm 10\%$.
 5. All neoprene mountings shall have a Shore hardness of 40 to 65, after minimum aging of 20 days or corresponding oven-aging.
- B. Adhere to SMACNA Guidelines for Seismic Restraints of Mechanical Systems.
- C. Adhere to ASHRAE Guide 1995 Chapter 50.
- D. Design seismic restraints in accordance with Seismic Requirements for New York City.
- E. Manufacturer of vibration isolation equipment has the following responsibilities:
1. Determine vibration isolation and seismic restraint sizes and locations.
 2. Guarantee specified isolation system deflection.



3. Provide piping and equipment isolation systems and seismic restraints as scheduled or specified.
 4. Guarantee specified isolation system deflection.
 5. Provide installation instructions, drawings and field supervision to assure proper installation and performance.
- F. Engineer's stamp verifying design and calculations for seismic restraining systems used.
- G. Substitution of internally isolated mechanical equipment in lieu of the specified isolation of this Section must be approved for individual equipment units and is acceptable only if above acceleration loads are certified in writing by the equipment manufacturer and stamped and sealed by a licensed civil or structural engineer licensed in the State of New York.
- H. Purchased and/or fabricated equipment must be designed to safely accept external forces of 1.0g load in any direction for all rigidly and resiliently supported equipment, piping and ductwork without failure and permanent displacement of the equipment. Life safety equipment such as fire pumps, smoke exhaust fans, emergency generators and other life safety designated equipment must be capable of accepting external forces of up to 1.5g in any direction without permanent displacement or failure of the equipment.
- I. Vibration isolation firms having a minimum three years experience designing and installing vibration isolation and seismic restraint systems shall be qualified to provide the materials and installation required by this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All vibration isolation devices to be the product of a single manufacturer.
- B. Where spring isolation systems are described in the following specifications, the mounting assemblies shall utilize bare springs with the spring diameter not less than 0.8 of the loaded operating height of the spring. Each spring isolator shall be designed and installed so that the ends of the springs remain parallel. The minimum deflection from loaded operating height to spring solid height shall be 50% of the rated static deflection of the spring.
- C. Where neoprene-in-shear isolation systems are described in the following specifications, the mounting assemblies shall utilize bare neoprene elements with unit type design molded in oil resistant neoprene. The neoprene shall be compounded to meet the following:
1. Shore hardness of 35 to 65 \pm 5, after minimum aging of 20 days or corresponding oven-aging.
 2. Minimum tensile strength of 2000 PSI.
 3. Minimum elongation of 300%.
 4. Maximum compression at 25% of original deflection.



- D. All mounting systems, including seismic restraints, exposed to weather and other corrosive environments shall be protected with factory corrosion resistance. All metal parts of mountings (except springs and hardware) to be hot dip galvanized. Springs shall be cadmium plated and neoprene coated. Nuts and bolts shall be cadmium plated.

2.2 VIBRATION ISOLATORS

- A. See manufacturers list below for all manufacturers approved. Basis of design for device models are indicated for reference only. Other manufacturers are acceptable.
1. Manufacturer abbreviations:
 - a. Mason Industries, Inc. (MII)
 - b. Vibration Mountings & Controls, Inc. (VMCI)
 - c. Vibration Eliminator Co. (VEC)
 - B. Refer to schedule sheets for vibration isolator types to be used.
 1. Type A: Bare spring isolators to incorporate the following:
 - a. Minimum ¼ inch thick neoprene acoustical base pad on underside, unless designated otherwise.
 - b. Designed and installed so that ends of springs remain parallel.
 - c. Non-resonant with equipment forcing frequencies or support structure natural frequencies.
 - 1) Type SLF MII (Basis of Design)
 - 2) Type OSK VEC
 - 3) Type AN VMCI
 - 4) Or approved equal
 2. Type B: Spring isolators to be same as Type A, except:
 - a. Provide built-in vertical limit stops with minimum ¼" clearance under normal operation.
 - b. Tapped holes in top plate for bolting to equipment.
 - c. Capable of supporting equipment at a fixed elevation during equipment erection. Installed and operating heights shall be identical.



- d. Shall incorporate snubbing restraint in all directions. Cast or aluminum housings are unacceptable. System to be field bolted or welded to deck with ability to resist forces of g acceleration.
 - 1) Type SLR MII (Basis of Design)
 - 2) Type KW VEC
 - 3) Type AWR VMCI
 - 4) Or approved equal
3. Type C: Spring hanger rod isolators to incorporate the following:
 - a. Spring element seated on a steel washer within a neoprene cup incorporating a rod isolation bushing.
 - b. Steel retainer box encasing the spring and neoprene cup.
 - c. Provide sufficient clearance between retainer box and spring hanger rod to permit minimum 15 degree allowable rod misalignment in any direction, total 30 degrees.
 - d. Requires seismic restraint type III.
 - 1) Type 30N MII (Basis of Design)
 - 2) Type SNRC VEC
 - 3) Type RSH-30A VMCI
 - 4) Or approved equal
 - e. Where operating weight differs from installed weight provide built-in adjustable limit stops to prevent equipment rising when weight is removed. Stops shall not be in contact during normal operation.
4. Type D: Elastomer isolators to incorporate the following:
 - a. Bolt holes for bolting to equipment base.
 - b. Bottom steel plates for bolting to sub-base as required.
 - c. Unit type design molded in oil-resistant neoprene.
 - d. Encased in ductile steel or iron casing and capable of withstanding external forces of up to 1.0 g. System to be field bolted or welded to deck with ability to resist forces of 1.0 g.
 - 1) Type BR/RBA MII (Basis of Design)
 - 2) Type 368 SD VEC
 - 3) Type RD VMCI



- 4) Or approved equal
5. Type E: Elastomer hanger rod isolators to incorporate the following:
 - a. Molded unit type neoprene element with projecting bushing lining rod clearance hole.
 - b. Neoprene element to be minimum 1¾" thick.
 - c. Steel retainer box encasing neoprene mounting.
 - d. Clearance between mounting hanger rod and neoprene bushing shall be minimum 1".
 - e. Requires seismic restraint type III.
 - 1) Type HD MII (Basis of Design)
 - 2) Type CD VEC
 - 3) Type RHD VMCI
 - 4) Or approved equal
6. Type F: Combination spring/elastomer hanger rod isolators to incorporate the following:
 - a. Spring and neoprene isolator elements in a steel box retainer.
 - b. Other characteristics of steel box retainer and hanger rod swing as described for Type C isolators.
 - c. Requires seismic restraint type III.
7. Type G: Pad type elastomer mountings to incorporate the following:
 - a. 0.750" minimum thickness.
 - b. 50 psi maximum loading.
 - c. Ribbed or waffled design.
 - d. .10" deflection per pad thickness.
 - e. 1/16" galvanized steel plate between multiple layers of pad thickness.
 - f. Suitable bearing plate to distribute load.
 - g. Requires seismic restraint type II or III as installation requires.
 - 1) Type Super W MII (Basis of Design)
 - 2) Type 200N VEC



- 3) Type Shearflex VMCI
 - 4) Or approved equal
8. Type H: Pad type elastomer mountings to incorporate the following:
- a. Laminated canvas duck material and neoprene.
 - b. Maximum loading 1000 psi.
 - c. Suitable bearing plate to distribute load.
 - d. Minimum thickness, ½ inch.
 - e. Requires seismic restraint type II or III as installation requires.
 - 1) Type HL MII (Basis of Design)
 - 2) Type T54 VEC
 - 3) Type Fabriflex VMCI
 - 4) Or approved equal

2.3 EQUIPMENT BASES

- A. See manufacturers list below for all manufacturers approved. Basis of design for device models are indicated for reference only. Other manufacturers are acceptable.
- B. Integral Structural Steel Base, Type B-1
 1. Reinforced as required to prevent base flexure at start-up and misalignment of drive and driven units. Centrifugal fan bases complete with motor slide rails. Drilled for drive and driven unit mounting template.
 - a. Type WF, M MII (Basis of Design)
 - b. Type SN VEC
 - c. Type MPF VMCI
 - d. Or approved equal
- C. Concrete Inertia Base, Type B-2
 1. Concrete inertia bases to be formed in a structural steel perimeter base, reinforced as required to prevent flexure, misalignment of drive and driven unit or stress transfer into equipment. The base to be complete with motor slide rails, pump base elbow supports and complete with height saving brackets, reinforcing, equipment bolting provisions and isolators.



2. Minimum thickness of the inertia base to be according to the following tabulation:

Motor Size (hp)	Minimum Thickness (in)
5-15	6
20-50	8
60-75	10
100-250	12
300-500	18

- a. Mason Type K, BMK (Basis of Design)
 - b. VEC Type SN
 - c. VMCI Type C
 - d. Or approved equal
- D. Curb Mounted Base, Type B-3
- 1. Curb mounted rooftop equipment shall be mounted on spring isolation curbs that directly sit on roof construction and are flashed and incorporated into roof's membrane waterproofing system.
 - 2. All spring locations shall have removable waterproof covers to allow for spring adjustment and/or removal.
 - 3. All spring mounts shall be as Isolator Type B.
 - 4. Curb and spring mounting shall be capable of withstanding 110mph wind and 1.5g seismic loads.
 - 5. Curbs shall be:
 - a. Mason Type CMAB or RSC (depending on deflection required) - (Basis of Design)
 - b. VEC Type AR
 - c. VMCI Type E
 - d. Or approved equal



- E. Isolated Rail Base, type B-4
1. Rails shall be constructed from structural steel angles, as required, to prevent flexure and misalignment under load.
 2. Each rail shall be the full length of the supported equipment and be welded to a series of vertically restrained spring isolators as Type B described above.
 3. Angles shall have bolt-together ties at the ends and center to form one rigid base platform.
 4. Rail Base shall be:
 - a. Mason Type TRSLR (Basis of Design)
 - b. VEC Type SN
 - c. VMCI Type A
 - d. Or approved equal
- F. Vaneaxial Fan Built-Up Casing Floating Base, Type B-5
1. The vaneaxial fan casing, coils, filter assembly and inlet/discharge silencers shall be erected on top of a poured-in-place, reinforced concrete floating floor supported on Mason Industries Type EAFM 2" high mounting system, VEC Type 140, VMCI Type RVD or approved equal.
 2. The mountings shall be oriented in the floating floor base for the weight and weight distribution of the supported equipment (casing, coils, filter silencers) on the floating floor.
 3. The plywood form shall be Type AC exterior grade, ½" thick. Isolation mounts shall be 2" thick and shall be selected and oriented to provide deflections not exceeding 0.3" or 10 Hz frequency.
 4. The fans shall be resiliently spring supported, and as described elsewhere, from concrete piers erected from the structural slab and isolated from the floating floor.
 5. The design and installation of the vaneaxial fan built-up casing floating floor and fan isolation shall be coordinated with the vibration control vendor such that there will be no short circuit of the floating build-up casing base and the building structure.
 6. Requires seismic restraint type II.

2.4 FLEXIBLE CONNECTORS

- A. See manufacturers list below for all manufacturers approved. Basis of design for device models are indicted for reference only. Other manufacturers are acceptable.
- B. Elastomer Type FC-1



1. Manufactured of nylon tire cord and EPDM, both molded and cured with hydraulic presses.
 2. Straight connectors to have two spheres reinforced with a molded-in external ductile iron ring between spheres.
 3. Elbow shall be long radius reducing type.
 4. Rated 250 psi at 170°F. Dropping in a straight line to 170 psi at 250°F for sizes 1½" to 12" elbows. Elbows shall be rated no less than 90% of straight connections.
 5. Sizes 10" and 12" to employ control cables with neoprene end fittings isolated from anchor plates by means of ½" bridge bearing neoprene bushings.
 6. Minimum safety factor of 4 to 1 at maximum pressure ratings.
 7. Submittals to include test reports.
 8. Flex connector shall be:
 - a. Mason Types SuperFlex MFNEC, MFLRR, MFTFU, MFTNC, MFTCR (Basis of Design)
 - b. VEC Flexi
 - c. VMCI Type FK
 - d. Or approved equal
- C. Flexible Stainless Hose, Type FC-2
1. Braided flexible metal hose.
 2. 2 inch pipe size and smaller with male nipple fittings.
 3. 2½ inch and larger pipe size with fixed steel flanges.
 4. Suitable for operating pressure with 4:1 minimum safety factor.
 5. Length as shown on Drawings.
 - a. Type BSS MII (Basis of Design)
 - b. Type MFP VMCI
 - c. Type Flexi VEC
 - d. Or approved equal
- D. Unbraided Exhaust Hose, Type FC-3



1. Low pressure stainless steel annularly corrugated.
2. Fitted with flanged ends.
3. Maximum temperature 1500°F.
4. Hose shall be:
 - a. Mason Type SDL-RF (Basis of Design)
 - b. VMCI Type FK
 - c. VEC Type Flexible Hose
 - d. Or approved equal

2.5 SEISMIC RESTRAINTS

A. General

1. Provide restraints capable of safely accepting 1.0 "G" external forces without failure, or 1.5 "G" for life safety equipment to maintain equipment, piping, duct and fan powered boxes in a captive position. Restraints must not short circuit vibration isolation systems or transmit objectionable vibration or noise.
2. Submit calculations by a licensed Professional Engineer licensed in the State of New York substantiating that all equipment mountings and foundations and their seismic restraints can safely accept external forces of 1.0g load for all rigidly and resiliently supported equipment, piping, and ductwork (1.5g load for all life safety equipment) without failure and permanent displacement. Restrain all resiliently mounted piping and ductwork with cable sway bracing.

B. Seismic Restraint, Type I

1. Comply with general characteristics of spring isolators.
2. Provide vertical restraints that are capable of supporting equipment at fixed elevation during equipment erection.
3. Incorporate seismic snubbing restraint in all directions at specified acceleration loadings.
4. System to be field bolted to structure with minimum capability to withstand external forces of 1.5g.
5. Types:
 - a. Mason Type SSLF (Basis of Design)
 - b. VMCI Type HTR



- c. VEC Type SB
- d. Or approved equal

C. Seismic Restraint, Type II

1. Each corner or side seismic restraint shall incorporate minimum 1" thick pad limit stops. Restraints shall be made of plate, structural members or square metal tubing in a welded assembly, incorporating resilient pads. Angle bumpers are not acceptable. System to be field bolted to deck with 1.5g acceleration capacity.
2. Seismic spring mountings as described above are an acceptable alternative providing all seismic loading requirements are met.
3. Types:
 - a. Mason Type Type Z-1011, Type Z-1225 (Basis of Design)
 - b. VMCI Type HTR
 - c. VEC Type SB
 - d. Or approved equal

D. Seismic Restraint, Type III

1. Metal cable type with approved end fastening devices to equipment and structure. System to be field bolted to deck or overhead structural members or deck with aircraft cable and clamps as per SMACNA guidelines.

2.6 MANUFACTURERS

- A.** Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufactures specified:
- a. Mason Industries, Inc. (MII)
 - b. Vibration Mountings & Controls, Inc. (VMCI)
 - c. Peabody Engineering (PE)
 - d. Korfund Dynamics Corp. (KDC)
 - e. Amber-Booth (AB)
 - f. Vibration Eliminator Co. (VEC)
 - g. Or approved equal.



PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Install in accordance with manufacturer's written instructions. Vibration isolators must not cause any change of position of equipment or piping resulting in piping stresses or misalignment.
- C. Isolate mechanical equipment from the building structure by means of noise and vibration isolators as scheduled on the Drawings and in these specifications.
- D. Piping and ductwork to be isolated must pass freely through walls and floors without rigid connections. Maintain 3/4 inch to 1 1/4 inch clearance around outside surfaces of piping or ductwork at penetration points. Pack this clearance space tightly with fiberglass, and caulk airtight after installation of piping or ductwork.
- E. Make no rigid connections between equipment and building structure that degrades the noise and vibration isolation system specified herein.
- F. Loop electrical circuit connections to isolated equipment to allow free motion.
- G. Bring to the Commissioner's attention prior to installation any conflicts with other trades which will result in unavoidable rigid contact with equipment or piping as described herein, due to inadequate space or other unforeseen conditions. Corrective work necessitated by conflicts after installation will be at the responsible contractor's expense.
- H. Support vertical piping loads, including water strainers, and valves between pump base elbow supports and the suction and discharge header piping by means of the pump base spring isolators without stress or strain to the pump housing.
- I. Do not install any equipment, piping or conduit which makes rigid contact with the "building" unless permitted in this Specification. Building includes, but is not limited to, slabs, beams, columns, studs and walls.
- J. Coordinate work with other trades to avoid rigid contact with the building. Inform other trades following work, such as plastering or electrical, to avoid any contact which would reduce the vibration isolation.

3.2 EQUIPMENT ISOLATORS

- A. Mount floor mounted equipment on 4" high concrete housekeeping pads over complete floor area of equipment. Mount vibration isolating devices and related inertia blocks on concrete pad. Key housekeeping pads with hair pins, as required, to be integral with structural slab. Provide approved seismic restraint anchor plates flush with top of housekeeping pad.
- B. Support each fan and motor assembly on a single structural steel frame. Provide flexible duct connections at inlet and discharge of fans.



- C. Provide brackets to accommodate the isolator. Manufacturer to specify the vertical position and size of the bracket.
- D. Maintain a minimum operating clearance between the equipment frame on rigid steel base frame and the housekeeping pad of 1 inch. Maintain a minimum operating clearance between concrete inertia and base and housekeeping pad or floor of 2 inches.
- E. Temporarily support the structural steel or concrete inertia base with blocks or shims, as appropriate, prior to the installation of the machine or isolators.
- F. Install the isolators without raising the machine and frame assembly.
- G. Adjust the isolator after the entire installation is complete and under full operational load so that the load is transferred from the blocks to the isolator. When all isolators are properly adjusted, the blocks or shims will be barely free and shall be removed.
- H. Verify that all insulated isolator and mounting systems permit equipment motion in all directions. Adjust or provide additional resilient restraints to flexibly limit equipment start-up lateral motion to ½ inch.
- I. Prior to start-up, clean out all foreign matter between bases and equipment. Verify that there are no isolation short circuits in the base or isolators.

3.3 ADDITIONAL REQUIREMENTS

- A. Diagonal thrust restraint shall be as described for Type C hanger with the same deflection as specified for the spring mountings. The spring element shall be designed so it can be pre-set for thrust and adjusted to allow for a maximum of ¼" movement at start and stop. Diagonal restraints shall be attached at the centerline of thrust. All piping and ductwork to be isolated shall freely pass through walls and floors without rigid connections. Penetration points shall be sleeved or otherwise formed to allow passage of piping or ductwork, and maintain ¾" to 1¼" clearance around the outside surfaces. This clearance space shall be tightly packed with fiberglass, and caulked airtight after installation of piping or ductwork.
- B. All HVAC piping vertical risers larger than 2" in diameter shall be isolated from the building structure by means of noise and vibration isolation guides and supports.
- C. Isolators shall be installed with the isolator hanger box attached to, or hung as close as possible to, the structure. Hanger rods shall be aligned to clear the hanger box.
- D. Isolators shall be suspended from substantial structural members, not from slab diaphragm unless specifically permitted.
- E. Structural steel for cooling tower or other equipment must support the equipment without excessive deflection. The structural steel support shall not be resonant with the isolation system resonant frequencies or the driving frequencies of the supported equipment.



3.4 PIPING, BOILER BREECHING AND ENGINE EXHAUST ISOLATORS

- A. All piping, boiler breeching and engine exhaust, except fire standpipe systems, are included under this Section.
- B. Installation:
 - 1. Isolate piping, boiler breeching and engine exhaust outside of shafts as follows: All water, steam and glycol piping, boiler breeching and engine exhaust in machine rooms. Piping where exposed on roof. Water piping, boiler breeching and engine exhaust within 50 ft., or 100 diameters if greater than 50 ft. from connected rotating equipment and pressure reducing stations. All other piping shall be rigidly supported and provided with approved seismic restraints to maintain the piping in a captive position without excessive motion.
 - 2. All piping 2" and over located in mechanical equipment rooms, and for a minimum of fifty (50) feet or 100 pipe diameters, whichever is greater, from connection to vibrating mechanical or electrical equipment, shall be isolated from the building structure by means of noise and vibration isolation hangers, Type F.
 - 3. Horizontal suspended pipe 2" and smaller and all steam piping shall be suspended by Type E isolator with a minimum 1" deflection. Water pipe larger than 2" shall be supported by Type F isolator with a minimum 1", or same static deflection as isolated equipment to which pipe connects, whichever is greater.
 - 4. Horizontal pipe floor supported at slab shall be supported via Type B, with a minimum static deflection of 1" or same deflection as isolated equipment to which pipe connects, whichever is the greater.
 - 5. Vertical riser pipe supports shall utilize Type H.
 - 6. Vertical riser guides, if required, shall avoid direct contact of piping with building.
 - 7. Pipe anchors, where required, shall utilize resilient pipe anchors to avoid direct contact of piping with building.
 - 8. Pipe sway braces, where required, shall utilize two (2) neoprene elements (Type G or H to accommodate tension and compression forces).
 - 9. Pipe extension and alignment connectors: Provide connectors at riser takeoffs, cooling and heating coils, and elsewhere, as required, to accommodate thermal expansion and misalignment.
 - 10. Adjust, as required, all isolators to eliminate all contact of the isolated rod with the hanger rod box retainer or short circuiting of the spring.

3.5 GENERAL SEISMIC RESTRAINT REQUIREMENTS

- A. All equipment whether isolated or not shall be bolted to structure to allow for minimum 1.0g of acceleration (1.5g for life safety equipment). Bolt points and diameter of inserts shall be submitted and verified as part of



the contractor's submission for each piece of equipment and stamped and sealed by a civil or structural engineer licensed in the State of New York.

- B. All suspended equipment, whether isolated or not, shall be seismically restrained at four points with Type III cable restraints.
- C. Install seismic restraining system Type III taut for overhead suspended unisolated equipment, piping or ductwork, and slack with ½" cable deflection for isolated systems.
- D. Seismically restrain all piping and ductwork with center bracing or Type III restraining system in accordance with SMACNA guidelines as outlined below:
 - 1. All schedule 10, 20, or 40 piping shall be welded or laterally braced at 40 foot intervals and at turns of more than 4 feet. Longitudinally bracing shall be supplied at 80 foot intervals. No-hub piping shall be braced at 10 foot intervals or at 40 foot intervals if 1.0g rated couplings are used.
 - 2. Ductwork to be braced every 30 feet (9m) and at every turn and duct run ends. Longitudinal bracing to be provided at 60 foot intervals.
- E. Seismic restraints are not required for the following:
 - 1. Gas piping less than 1" internal diameter.
 - 2. Piping in boiler and MER room that is less than 1¼" internal diameter.
 - 3. All other piping and electrical conduit less than 2½" internal diameter.
 - 4. All rectangular ducts less than 6 sq. ft. in cross sectional area.
 - 5. All round ducts less than 28" in diameter.
 - 6. All piping suspended by individual hangers 12" in length or less from the point of the attachment to the duct to the bottom of the support for the hanger.
 - 7. All ducts suspended by hangers 12" or less in length from the point of the attachment to the duct to the bottom of the support for the hanger.
- F. Chimneys and stacks passing through floors are to be bolted at each floor level or secured above and below each floor with riser clamps or approved vibration isolation systems with seismic restraints.
- G. Chimneys and stacks running horizontally to be braced every 30 ft. with Type III restraining system.
- H. Where base anchoring is insufficient to resist seismic forces, supplementary restraining such as seismic restraint system Type III shall be used above system's center of gravity to suitably resist 'g' force levels. Vertically mounted tanks may require this additional restraint.
- I. For overhead supported equipment, overstress of the building structure must not occur. Bracing may occur from:



1. flanges of structural beams;
 2. upper or lower truss chords in bar joist construction at the panel points;
 3. cast-in-place inserts or drilled and shielded inserts in concrete structures.
- J. Each seismic restraint and snubbing device shall be installed after equipment is installed and fully operational. Each isolation mounting incorporating seismic restraint shall be adjusted to provide the minimum operating clearance in all directions to permit the operation of the equipment without objectional noise or vibration to any part of the building structure. The operating clearance for equipment seismic restraints shall not be greater than ¼" (6mm). Seismic restraints must not result in short-circuiting of isolated equipment.

3.6 INSPECTION

- A. On completion of installation of all vibration isolation and seismic restraint devices herein specified, the local representative of the isolation materials manufacturer shall inspect the complete system and report in writing any installation errors, improperly selected isolation or restraint devices, or other faults that could affect the performance of the system. Contractor shall submit a report to the Commissioner, including the manufacturer's representative's final report, indicating all isolation reported as properly installed or requiring correction, and include a report by the Contractor on steps taken to properly complete the isolation work.

END OF SECTION 23 05 48



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**SECTION 23 05 53
SYSTEMS IDENTIFICATION**

PART 1 - GENERAL

1.1 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

- A. Provide systems identification in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Valve Tags.
- B. Piping Identification.
- C. Equipment Identification.
- D. Duct Identification.
- E. Charts and Schedules.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings: Submit valve tag chart; pipe, duct and equipment labels, paint and color chart.
- C. Product Data: Manufacturer's latest published data for materials, equipment and installation, including samples of valve tags, equipment identification and piping identification, showing size of lettering.
- D. Maintenance Manuals: Provide valve tag charts for inclusion in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Piping identification to be in accordance with ANSI A 13.1 - 1996 (latest edition) as to sizes, color, lettering and background color.



PART 2 - PRODUCTS

2.1 VALVE TAGS

- A. Use tags 2 inch minimum diameter, fabricated of brass, stainless steel, aluminum or shatterproof plastic. Attach tags with chain, S-hook or split ring as appropriate.

2.2 PIPING IDENTIFICATION

- A. Provide color coded bands for all piping systems per ANSI-A 13.1-1996.
- B. Adhesive bands to be B350, Perma Code Film markers or approved equal for indoor use and Quick-Apply mechanically affixed markers for outdoors use, by W.H. Brady Co, Seton, Marking Services or approved equal.

2.3 EQUIPMENT IDENTIFICATION

- A. Identify mechanical equipment by means of nameplates permanently attached to the equipment. Provide black surface, white core laminated bakelite with engraved letters. Minimum size plates 3" long by 1" wide with white letters 3/8" high. Fan powered terminals do not require nameplates.
- B. Identification of Automatic Controls to be as per Automatic Temperature Control specification.

2.4 DUCT IDENTIFICATION

- A. Stencil system number and service (supply, return, exhaust) onto ducts at strategic locations. Provide arrows to show direction of flow.

2.5 CHARTS & SCHEDULES

- A. Provide two diagrammatic charts of all piping systems showing location, numbers and types of all valves, framed for mounting. Legend to show service (steam, chilled water, etc.) and valve number. Assign numbers by floor.

2.6 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include the manufactures specified:
 1. W.H. Brady
 2. Seton
 3. Marking Services Inc.
 4. Metalcraft Inc.
 5. Craftmark Inc.



6. Or approved equal

PART 3 - EXECUTION

3.1 PIPING SYSTEMS

- A. Identify all piping systems with color coded bands per ANSI A13.1-1996, sharply contrasting with background. Locate bands near strategic points, such as valves, items of equipment, changes in direction, wall penetrations, capped stub out for future connection and every 40 feet of straight runs. If necessary, paint a strip background of black or white to obtain contrast.
- B. Each set of bands to consist of one (1) band on which the name of the service is printed in black letters not less than 1½" high, and two (2) bands on which is printed a black directional arrow located on each side of legend. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- C. All valves shall be properly tagged.
- D. Provide three schedules of all valves showing number, size, type and service of each valve, suitable for use with three ring binder. Provide separate list for each system.
- E. Drain piping serving mechanical equipment items for which the drain discharge is not visible from the equipment shall be marked in accordance with ANSI 13.1-1996 near the point of discharge indicating the item of equipment served.

3.2 EQUIPMENT

- A. Attach nameplates in a permanent manner in a location that will be clearly visible after installation is complete.
- B. Mask all labels prior to field painting of equipment. Labels that are painted over will be replaced by Contractor at no cost to the City of New York.

3.3 DUCTWORK

- A. Stenciling to be done after insulation and other duct coverings are completed.
- B. Systems on which duct identification has been covered or is otherwise not visible will not be accepted.

3.4 CHARTS & SCHEDULES

- A. Prepare valve charts in a framed mounting behind a clear covering, such as glass, for protection.
- B. All identifying numbers will correspond to those numbers as shown on Contract Documents, such as riser numbers, equipment numbering, piping and duct symbols, etc.

END OF SECTION 23 05 53



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**SECTION 23 05 93
TESTING, ADJUSTING AND BALANCING**

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

- A. Provide testing, adjustment and balancing for all water and air systems in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Pressure testing of new piping and new duct systems.
- B. Preliminary and final adjustment of all existing and new water systems.
- C. Preliminary and final adjustment of all existing and new air systems.
- D. Verification of required air and water quantities from existing systems, if applicable.
- E. Temporary pipe and duct connections, pipe caps, duct caps, tees, valves, dampers, etc. TAB contractor to coordinate with mechanical contractor.
- F. Performance testing of all HVAC systems.
- G. This section covers general duct, pipe and equipment testing. Additional specific equipment tests are covered in individual sections.
- H. Operation of mechanical systems as required for testing by other trades.
- I. Cooperate with independent agent performing controlled inspections and/or commissioning.
- J. Refer to commissioning specifications for additional scope.



1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit the following prior to the execution of testing during the shop drawing phase:
 - 1. Complete brochure of proposed independent certified balancing firm, listing previous installations successfully balanced; length of time in business, names and qualifications of employees who will be assigned to the project, and list of instruments, equipment and elapsed time schedule to be used on the project.
 - 2. Procedures and recording forms for testing and adjusting each system and each item of equipment.
 - 3. Documentation of instrumentation calibration including date of calibration.
 - 4. Complete test and balancing plan listing all TAB procedures. For air and water systems the test and balancing plan submitted must be customized and reflect the actual systems within the project.
- C. Submit the following prior to completion of testing and adjusting.
 - 1. Submit six (6) certified copies of each complete testing and adjustment report to the Commissioner for review and send two (2) copies of the report to the City of New York. The Contractor shall submit individual testing and adjustment reports for each individual air distribution system, each return and exhaust system, and each pumping system within two (2) weeks after completion of the testing and adjustment of each system.
- D. Inspection Reports: List all system deficiencies found.
- E. Submit a statement of compliance or non-compliance with this specification section.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Testing
 - 1. SMACNA - 2002 Testing, Adjusting and Balancing.
 - 2. ANSI/ASME B31.9 - 2008; Chapter VI Part 937.
 - 3. ANSI/ASME B31.1 - 2010; Power Piping Code.
- C. Balancing
 - 1. AABC 2002 National Standards; Air and Hydronic.
 - 2. NEBB 2005 Edition of the Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems.



3. SMACNA - 2002 Testing, Adjusting and Balancing.
- D. During the progress of the work, make tests as specified herein and as required by the Inspection Department, City of New York, or Commissioner. Tests shall be conducted by the Mechanical Subcontractor as part of the work of this Division. Include all qualified personnel, equipment apparatus, and services required to perform the tests.
- E. Calibrate all instruments used for testing and adjusting within a period of six (6) months prior to testing and/or balancing.

PART 2 - PRODUCTS

2.1 PRESSURE AND TEMPERATURE SENSING TAPS

- A. Provide ½-inch pressure and temperature test plugs on the entering and leaving piping at all equipment and as indicated on the plans in order to complete the required system balancing. Coordinate with the mechanical subcontractor during the installation phase.

PART 3 - EXECUTION

3.1 TESTING

- A. General
 1. Provide a complete set of approved mechanical and electrical shop drawings and equipment and product submittals to the balancing subcontractor.
 2. Perform all tests required as specified herein, as well as demonstrations of operation for all equipment. Each final test to be witnessed by the Commissioner. Give a minimum of seven (7) days written notice before performing tests.
 3. Install all temporary and permanent equipment and instruments required for tests, as well as additional thermometer wells, gauge and instrument connections, at no additional cost to the City of New York.
 4. Perform preliminary tests and repair all leaks before notifying the Commissioner of final tests.
 5. Repair leaks, damage, or defects discovered during or resulting from tests or replace to a like-new condition. Remove leaky pipe joints, ductwork, etc., and replace with acceptable materials. Retest systems repaired.
 6. Maintain a log book of all tests, preliminary and final, showing dates, personnel, observers' initials, description of test, and test status. Provide updated log to the Commissioner each month throughout the construction period. Initial log submitted to include listing of all anticipated tests.
 7. Testing, balancing, and adjusting will not relieve the Contractor of the warranty requirements.



8. Furnish all fuel, water, and electricity required in performing the testing, balancing and adjustment of mechanical systems.
9. Clean all piping and ducts before testing. Refer to spec section 23 25 00 entitled "Pipe Cleaning and Chemical Water Treatment."
10. Use calibrated test gauges with at least 4½" diameter dial. Gauge range not to be more than three (3) times test pressure.
11. Provide and demonstrate operation of all test equipment and apparatus required for the complete testing and inspection of all systems at such time and locations as may be directed by the Commissioner.
12. When freezing is a hazard, take all precautions necessary to prevent damage. Correct any and all damage that results due to freezing at no expense to the City of New York.
13. All tests shall be successfully completed and approved prior to the application of insulation and prior to the concealment of any portion of the system being tested.
14. At the completion of the project, the Contractor shall provide a certificate of testing in accordance with the requirements of New York City Mechanical Code chapter 11, section 1108.4.

B. Piping

1. Before covering or enclosing piping of various systems, all piping must be tested tight for 4 hours. Start and coordinate testing to be completed by 4:30 PM on the day started. The maximum test pressure not to exceed 500 psig. Tests may be witnessed by the Commissioner if he so desires, and pronounced satisfactory before pressure is removed.
2. Equipment must be valved off during the test. Do not pressure test through new equipment if equipment pressure ratings cannot support the test pressure. Drain equipment and piping and protect against freeze-up anytime the ambient temperature is below freezing.
3. Mix water for each hydrostatic test with ferrous corrosion inhibitor to a ratio of fifty (50) gallons of chemical to 10,000 gallons of water, or a higher concentration if recommended by the chemical manufacturer. At least sixty (60) days prior to the start of hydrostatic leak testing, submit a two (2) foot long length of the typical piping installed on the project to Nalco, Dow Chemical, DuPont or another chemical manufacturer acceptable to the Commissioner, to determine the composition of the internal pipe coating. Provide injection pumps, water meters and coupon racks to control and monitor the concentration. After leak testing and a sufficient time period to allow the interior of the piping to be chemically coated to prevent rust formation, drain the piping system until empty.
4. Test piping within conduit prior to encasement of joints.
5. Hydrostatically test water piping at 1.5 times actual maximum working pressure.
6. Hydrostatically test steam and condensate piping (less than 90 psig) for eight (8) hours at 150 psig.



7. Hydrostatically test steam and condensate piping (over 90 psig) for eight (4) hours at 1.5 times maximum working pressure.
8. In New York City all steam piping above 15 psig shall have welded joints 100% radiographed.
9. For all steam piping above 15 psig outside of New York City, provide radiographic examination of 10% of all high-pressure steam welds. Commissioner to select welds to be tested. If any welds fail, test all other welds as directed by the Commissioner at no cost to the City of New York.
10. Compressed Air Piping: Air test at 125% of relief valve setting of compressor but not exceeding 150 psig for four (4) hours.
11. Refrigerant Piping: Air test at 125% of maximum operating pressure but not exceeding 150 psig for four (4) hours.

C. Ductwork

1. Maximum system leakage shall not exceed 5% of system design capacity. When testing individual segments of a total system, prorate allowable leakage as follows:

$$\text{Maximum Leakage} = \frac{(\text{Surface Area of Test Section}) \times (.05) \times (\text{System CFM})}{(\text{Surface Area of System})}$$

- a. Test recording form to include above calculation. When all sections of a system have been tested, submit confirmation that the sum of individual section surface areas is equal to the total system surface area.
2. Pressure tests shall be performed with a test blower. Rig with orifice plate. Test ducts/casings with positive pressure on the discharge side of the system fan and under negative pressure on the suction side of the system fan. Include testing of flexible runouts.
3. During construction, individually test each completed riser, each completed horizontal distribution section and each field erected casing/plenum, as required below.
4. Test ductwork as follows:
 - a. Low Pressure Ductwork (From -2 to +2 inches H2O inclusive):
 - 1) Exposed or Accessible: Visual and audible check for leaks that can be heard or felt under normal operating conditions.
 - 2) Concealed (i.e., within shafts and above sheetrock ceilings): Pressure test at 2 inches H2O (pos. or neg. as required).
 - b. Medium Pressure Ductwork (Below -2 inches and above +2 inches H2O): Pressure test at system pressure classification.



D. Equipment and Systems

1. When each mechanical system is complete and functional, prove the capacity and performance of each item of equipment (i.e., fans, pumps, chillers, cooling towers, boilers, heat exchangers, etc.). Operate each item of equipment for a minimum of four (4) hours and record all associated operating data every 15 minutes (i.e., temperatures, flows, pressures, amps, volts, etc.). Verify all integral and external equipment controls and safeties are in proper working order. Complete system testing and demonstration to be done for both normal and emergency modes of operation. Commissioner, including Commissioning Agent, may witness final tests.
2. Demonstrate to commissioner, the proper operation of each control, monitor and alarm function of the control system, along with all software routines. Demonstrate these functions and routines from the front end and local panels under both normal and emergency power. Verify proper operation of battery back-up and downloading of software from the front end to the remote microprocessor panels.
3. Provide operation of all mechanical equipment required for systems testing by other trades (i.e., fuel oil systems, smoke exhaust systems, etc.).

3.2 ADJUSTMENT

A. General

1. Prior to start of air balancing, take traverse readings at all connections to building systems with all downstream dampers and VAV devices in fully open position and report results to Commissioner. Provide assistance if air quantities are below that shown on drawings.
2. Prior to start of water balancing, take ultrasonic flow readings at all connections to building systems with all downstream valves in full flow position and report results to Commissioner. Provide assistance if water quantities are below that shown on drawings.
3. After the entire installation has been completed, make required adjustments to balance valves, air vents, automatic controls, pumps, air dampers, VAV boxes, air distribution devices, pressure reducing valves, fans, sheaves, etc., until performance requirements are met. Make these adjustments with equipment operating. In addition, repeat these adjustments for each of the remaining three seasons of the year. During such periods of adjustment prior to the date of acceptance of the mechanical systems, operate equipment.
4. Permanently mark the balanced position of each balancing valve and damper on the pipe or duct or insulation.

B. Water Balancing

1. Before any hydronic balancing work is done, install clean strainers, check proper pump rotation, proper control valve installation and operation. Verify that each system is adequately bled and vented, proper system static pressure is available to assure a full system, flow meter and check valve is properly installed. Maintain throttling devices and control valves open at this time as required and appropriate.



2. After piping systems have been installed, tested, cleaned and flushed, complete with all pumps, piping, valves, coils, and other items as herein specified, make adjustments as required to deliver the water volumes at each coil and piece of equipment to within 5% of design flow as shown on the Drawings, or as required to properly balance the load throughout the conditioned areas. During balancing set control for full-flow through coils. Set automatic throttling valves in the full-open position. Close the bypass port on automatic 3-way valves. Confirm proper differential pressure settings at system by-pass station.
3. Each air handling unit with multiple coils shall have the flow through each coil balanced. Make adjustments in water volumes in a manner satisfactory to the Commissioner. Submit detailed balancing procedure and recording forms for the Commissioner's review months prior to commencing any water balancing work.
4. After water flow is adjusted, and with the temperature controls set to produce design cooling, measure and record all data necessary to compile a complete report to demonstrate the acceptability of the various mechanical systems.
5. Record the following design requirements for pumps and pump motors from the design drawings and reviewed shop drawings:
 - a. Manufacturer, model and size.
 - b. Water quantity - gallons per minute.
 - c. Total head - feet of water.
 - d. Pump speed - revolutions per minute.
 - e. Impeller size.
 - f. Net positive suction head.
 - g. Motor horsepower and brake horsepower.
 - h. Volts, hertz, amperes and service factor at design conditions.
6. Record the following data from pumps and pump motors installed at the project:
 - a. Manufacturer, model and size.
 - b. Impeller size.
 - c. Motor horsepower, service factor and revolutions per minute.
 - d. Volts, hertz and full load amperes.
 - e. Motor starter and heater size.
 - f. Equipment location.



7. Record the following data for pumps and pump motors installed at the project:
 - a. Pump speed - revolutions per minute.
 - b. Total head at shutoff or dead-end discharge feet of water. (Plot this value on pump curve as a verification of impeller size.)
 - c. Suction, discharge and total head at final adjusted flow - in feet of water.
 - d. Calculate brake horsepower and show on pump curve.
 - e. Motor amperage and voltage on each phase at operating conditions.
8. Adjust flow through equipment and coils by means of pressure drop. Obtain curves from the various manufacturers indicating the relationship between flow and pressure drop through the coils and equipment. Take readings on calibrated test gauges.
9. For orifice plates record the pipe size, orifice size, flow factor, required differential pressure, final differential pressure, and calculated final flow quantity.
10. For venturi type, pitot tube, or other flow measuring devices, record the pipe size, manufacturer and size of device, and the direct reading of the differential pressure, and calculated final flow.
11. Upon completion of the water balance, reconcile the total heat transfer through all coils by recording the entering and leaving water temperatures and the entering and leaving air dry bulb and wet bulb temperatures. Adjust differential bypasses for the same pressure drop on full bypass as on full flow.
12. Do not perform adjustments until the entire system has been pressure tested, flushed and cleaned.
13. In conjunction with pump manufacturer for multiple pump, pumping systems, construct and submit system curves indicating operating point with one pump operating, two pumps operating, three pumps operating, etc.
14. Record all system pressure and temperature readings.

C. Air Balancing

1. Adjust all air systems by AABC or NEBB certified balancing contractor acceptable to the Commissioner.
2. Operate fan systems for as long a time as will be necessary to test air flow from openings, make necessary damper and other adjustments until even distribution is obtained, throughout the various systems, with the air quantities required at each outlet or inlet as shown on the Drawings. Make noise level measurements for the operation of mechanical equipment selected by the Commissioner in order to determine if the equipment produces excessive noise in occupied areas of the building.
3. Before any air balance work is done, test the system for duct leakage, install clean filters, check for correct fan rotation and equipment vibration, check automatic dampers for proper operation, and verify that all fire dampers are open.

Testing, Adjusting and Balancing
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4. Fans to be adjusted to deliver above system requirements to compensate for duct leakage.
5. Preliminary adjustment may be made prior to completion of systems; however, final balancing must be done with all systems completely installed and operating, including all air outlets and return grilles.
6. Record the pressure drop across the filters in air systems prior to balancing. Systems to be adjusted with clean filters.
7. Traverse main supply air ducts, using a pitot tube and manometer. Calibrate the manometer to read two (2) significant figures in all velocity pressure ranges. A main duct is defined as any of the following:
 - a. A duct serving five (5) or more outlets.
 - b. A duct serving two (2) or more branch ducts.
 - c. A duct serving a heating coil.
 - d. A zone duct from a VAV unit.
 - e. A duct emanating from a fan discharge or plenum and terminating at one or more outlets.
 - f. All supply and exhaust risers.
8. The intent of this operation is to measure by traverse the total air quantity supplied by the fan and to verify the distribution of air to zones.
9. Submit data in support of all supply fan deliveries by the following four (4) methods:
 - a. By summation of the air quantity readings at outlets.
 - b. By duct traverses of main supply ducts.
 - c. By rotating vane traverse across a filter or coil bank.
 - d. By plotting revolutions per minute and static pressure readings on the fan curve. Air density corrections must be indicated.
10. For return air and exhaust fans, the second and third methods listed above (b. & c.) can be omitted.
11. Inspect fan scrolls and remove objects or debris. Inspect coils and remove debris or obstructions. Verify that all fire dampers are open and control dampers are in their proper position.
12. Record the following design requirements for fans and fan motors from the design drawings and reviewed shop drawings:
 - a. Manufacturer, model and size.
 - b. Air quantities - cubic feet per minute.



- c. Approximate fan speed - revolutions per minute.
 - d. Fan static pressure (total or external) - inches of water.
 - e. Outlet velocity - feet per minute.
 - f. Fan brake horsepower.
 - g. Motor horsepower.
 - h. Volts, hertz, amperes and service factor at design conditions.
13. Record the following data from fans and fan motors installed at the project:
- a. Manufacturer, model and size.
 - b. Motor horsepower, service factor and revolutions per minute.
 - c. Volts, hertz, full load amperes and service factor.
 - d. Motor starter and heater size.
 - e. Equipment location.
14. Completely adjust fans and duct systems by the adjustment of sheaves, dampers, and other volume and diverting control devices, to obtain the air quantities indicated in the Contract Documents. Integral dampers in terminal outlets and inlets are not to be used for adjustment of duct branches. Adjust outside air and return air modulating dampers to admit the specified quantities of air under all cycles of operation. Adjust final air quantities within 5% of the design requirements. Balance air outlets with air pattern as shown on the Drawings.
15. Record the following test data for fans and fan motors installed at the project at final balanced conditions:
- a. Fan speed - revolutions per minute.
 - b. Fan suction, discharge and total static pressure (external or total) - inches of water.
 - c. Static pressure drops across filters, dampers, coils, washers and eliminators in the supply fan casings in inches of water.
 - d. Motor operating amperes and voltage per phase at operating conditions.
 - e. Fan cubic feet per minute as required above.
 - f. Calculated brake horsepower.



16. Prepare single line diagrams of duct systems indicating terminal outlets identified by number. List on data sheets all such outlets denoted by the same numbers, including the outlet size, "K" factor, location, cubic feet per minute and jet velocity. Submit this data for supply, return and exhaust air systems.
17. Adjust the minimum and maximum settings on all VAV and CV boxes.
18. Adjust the outside air and return dampers to admit the required amounts of air under both summer and winter cycles. Record the outside, return and mixed air temperatures for both cycles after final adjustments.
19. Adjust the minimum, maximum, return and exhaust/spill air dampers so that the respective fans deliver the correct cubic feet per minute at all damper positions. Should the observed air quantities be less than 95% or more than 105% of the specified amount, change driving pulley ratio to make acceptable changes to obtain the specified or scheduled air quantities.
20. Balance and adjust supply air systems as follows:
 - a. Systems installed with trunk ducts only, with no air outlets, to be balanced by adding a volume damper at each end of the trunk duct (minimum of two (2) dampers per system if duct is looped). Make adjustments to the air handling units as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove dampers and seal or re-cap openings after reports have been accepted by the Commissioner.
 - b. Systems installed with main duct capped at wall of fan room will be balanced by installing an opposed blade damper at each capped connection. Make adjustments as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove dampers and re-cap openings after reports have been accepted by the Commissioner.
 - c. Systems installed partially complete will be balanced by installing a volume damper in duct allocated for remaining portion of system. Make adjustments as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove damper and re-cap or seal openings after reports have been accepted by the Commissioner
 - d. Balance and adjust supply air systems installed in finished areas of the building (except for areas with inaccessible ceiling construction) as follows:
 - 1) After duct systems have been installed complete with all grilles, dampers, ducts, coils, automatic temperature controls, and other items hereinafter specified, make the adjustments to the air handling units and all outlets as required to deliver the volume of air within 5% of design flow as shown on the Drawings with design cold duct temperatures. After the finished area is occupied, readjust the air volumes if required, to properly balance the cooling and heating loads throughout the conditioned areas.
 - e. Balance and adjust completed supply air systems installed in areas with inaccessible ceilings as follows:



- 1) After duct systems have been installed complete with all dampers, ducts, coils, and other items hereinafter specified, except for final connection to grille or air outlet, and prior to inaccessible ceiling installation, make adjustments, as required, to deliver the volume of air at each interior and perimeter air tap proportionally within 5% of design flow as shown on the Drawings.
 - 2) After each duct system has been adjusted, securely lock each manual damper, splitter, spin-in damper, etc., with sheetmetal screws prior to installation of ceiling.
 - 3) Submit balancing reports to the Commissioner for review and comment as specified hereinafter, prior to the installation of the inaccessible ceiling. Do not conceal duct system prior to the receipt of an air balance report which has been accepted by the Commissioner for the system.
 - 4) After ceiling installation, install each air outlet with air patterns as shown on the Drawings. Make final air balance adjustment by increasing or decreasing the air handling fan powered terminal unit fan rpm.
21. The air balancing subcontractor shall visit the project site as often as necessary prior to the start of balancing procedures to verify that the duct systems have been properly installed complete with all grilles, dampers, ducts, coils, etc., and that the return air paths through walls, grilles, lighting fixtures, and slot diffusers are completely open and unobstructed. The air balancing subcontractor shall also verify that adequate access to equipment and balancing devices has been provided and that the temporary plastic coverings on the lighting fixtures used for supplying conditioned air have been removed. The air balancing subcontractor shall submit a written report to the Commissioner within one (1) week after each visit.
 22. For balancing air outlets, use a flow hood for the air balance. The instrument to be complete with a flow hood kit complete with flow hood tops specifically designed to accurately measure the air outlets specified for this project. The flow hood's accuracy and the instrument calibration for measuring the air flow from the air distribution device specified for the project must be verified in an independent testing laboratory acceptable to the Commissioner.
 23. For garage supply and exhaust, all smoke exhaust and make-up, toilet exhaust, and other exhaust air systems have been installed complete with all ductwork, grilles, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver the volumes of air at each inlet or outlet within 10% of design flow.
 24. After all miscellaneous ventilation systems have been installed complete with all duct, grilles, louvers, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver to volumes of air, or differential static pressures in the case of the pressurization fans, at each air inlet and/or outlet within 10% of design flow.



3.3 DUCT TESTING OF LIFE SAFETY VENTILATION SYSTEMS

A. General

1. Perform all tests as specified herein. The mechanical, fire protection, fire alarm, electrical, controls subcontractors and the Contractor shall be present and participate during the entire testing procedures.
2. The Mechanical Subcontractor shall include all costs associated with the required demonstration tests, including smoke bombs, instrumentation, etc.

3.4 FINAL REPORT

- A. If the work is completed during the heating season, perform the final tests of cooling equipment the following summer; if completed during the summer, perform test on heating system the following winter.
- B. After each seasonal adjustment is made, prepare a detailed report and submit to the Commissioner for approval.
- C. Demonstrate to the Commissioner prior to acceptance that all systems and/or equipment have been balanced and adjusted properly, and that the system and/or equipment is in compliance with the Contract Documents.

END OF SECTION 23 05 93



**Department of
Design and
Construction**

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**SECTION 23 07 00
INSULATION**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 DESCRIPTION

- A. Provide thermal insulation in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Piping Insulation.
- B. Duct Insulation.
- C. Equipment Insulation.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings: Submit list of insulation to be used for each service.
- C. Product Data: Manufacturer's latest published data for materials, "R" values and installation.
- D. Provide BS&A or MEA numbers.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. All insulating materials to be free of asbestos.
- C. Comply with all requirements of ASTM for thermal and moisture transmission.
- D. Provide insulation (including insulation jacket or facing and adhesives used to adhere the facing or jacket to the insulation) with non-combustible material meeting Code requirements and fire and smoke hazard ratings as tested by procedure ASTM E-84, National Fire Protection Association 255, and UL 723, not exceeding flame spread 25 and smoke developed 50. Adhesives, mastics, cements, etc. shall not exceed the same component ratings. Foam glass insulation to be manufactured in accordance with ASTM C552.



- E. All insulating products and coverings to be U.L. listed.
- F. All insulation thicknesses shall be at least the minimum thickness required by AHRAE 90.1 – 2001 for the respective services, materials and project location.
- G. Insulation materials, including all weather and vapor barrier materials, closures, hangers, supports, fitting covers, and other accessories, shall be furnished and installed in strict accordance with project drawings, plans, specifications and manufacturer’s requirements.
- H. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers who are regularly engaged in commercial insulation work.

1.6 DELIVERY AND STORAGE OF MATERIALS

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a safe, dry place with appropriate labels and/or other product identification.
- B. The contractor shall use whatever means are necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that has become damaged in any way. The contractor shall also use all means necessary to protect work and materials installed by other trades.
- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material, and shall remove it from the job site.

PART 2 - PRODUCTS

2.1 PIPE INSULATION

A. Materials

- 1. When the temperature of a fluid falls within the following temperature ranges at any time during the system cycle, provide the insulation thickness indicated.

Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger
Steam (125 psig and higher)	351 to 450	Glass Fiber	2-1/2	3	3	4	4
Steam (16 psig to 124)	251 to	Glass Fiber	2	2-1/2	3	3	3



Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger
psig)	350						
Steam (15 psig and lower), steam condensate	201 to 250	Glass Fiber	1-1/2	1-1/2	2	2	2
Water, glycol, brine	40 to 60	Glass Fiber	1/2	1	1	1	1
Chilled water, glycol, brine	Below 40	Glass Fiber	1	1-1/2	1-1/2	1-1/2	1-1/2
Condensate drains above hung ceilings and in shafts	-	Glass Fiber	1/2	1/2	1/2	1	1
Refrigerant	Below 40	Glass Fiber	1	1-1/2	1-1/2	--	--
Domestic Fresh Water	-	Glass Fiber	1	1	1	1	1
Refrigerant hot gas (exposed)	Above 100	Glass fiber	1/2	1/2	1/2	--	--
Water, Brine Glycol	60 and below	Foam Glass	1	1	1	1 1/2	2

- B. Provide insulation materials and thickness for steam piping and metering equipment at the building service entry in accordance with Utility Company requirements.
- C. Fiberglass Density: Fiberglass pipe insulation in equipment rooms and/or where exposed to be of the sectional type having 6 lbs./cu. ft. density. Other fiberglass insulation to be of the 1-piece type with at least 4 lbs./cu. ft. density.
- D. Thermal conductivity of fiberglass to be .23 BTU/hr/inch/sq.ft./°F/at a mean temperature of 75°F.



- E. Foam glass density to be 8 lbs/cu. ft.
- F. Thermal conductivity of calcium silicate to be .32 BTU/hr/inch/sq.ft./°F/at a mean temperature of 100°F.
- G. Thermal conductivity of foam glass to be .32 BTU-in/hr.ft.2 °F at a mean temperature of 75°F.
- H. Insulation Jackets
 - 1. Pipes carrying fluids 60°F and below up to 14 inches. Factory applied white fire retardant vapor barrier jacket with self-sealing lap, all service jacket and butt strip. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 or FB 30-35).
 - 2. Finish calcium silicate with glass cloth adhered with I.C. 501 or BF 30-36.
 - 3. Vapor barrier jacket permeability to be 0.02 perms.
 - 4. Jacket Puncture Resistance to be 50 units (Beach).
 - 5. When multiple layers are required, all inner layer(s) shall be No Wrap.
 - 6. On cold systems, vapor barrier performance is extremely important. All penetrations of the all service jacket and exposed ends of insulation shall be sealed with vapor barrier mastic. If humidities in excess of 90% are expected, the asll service jacket shall be protected with either a mastic coating or a suitable vapor retarding outer jacket. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.
- I. Fittings, Valves and Flanges
 - 1. Where manufactured, use factory premolded fittings (of the same material and thickness as the pipe insulation) for fittings, flanges and valves.
 - 2. Where premolded insulation fittings are not manufactured, insulate fittings, flanges and valves with mitered segments of the same thickness and density as the adjoining pipe covering.
 - 3. On cold systems, particular care must be given to vapor sealing the fitting cover or finish to the pipe insulation vapor barrier. All valve stems shall be sealed with caulking to allow free movement of the stem but provide a seal against moisture incursion.
- J. Piping located outdoors and exposed to the weather shall be insulated as indicated above. The insulation shall then be protected with the following weatherproof finishes:
 - 1. Metal jacketing shall be 0.016" (0.4 mm) minimum aluminum or stainless steel with moisture barrier, secured in accordance with the jacket manufacturer's recommendations. Joints shall be applied so they will shed water and shall be sealed completely.



2. UV resistant PVC jacketing may be applied in lieu of metal jacketing provided jacketing manufacturer's limitations with regard to pipe size, surface temperature, and thermal expansion and contraction are followed.
3. Fittings shall be insulated as prescribed above, jacketed with preformed fitting covers matching outer jacketing used on straight pipe sections, with all joints weather sealed.
4. On outdoor chilled water and refrigerant lines, the insulation system shall be completely vapor sealed before the weather-resistant jacket is applied. The outdoor jacket shall not comprise the vapor barrier by penetration of fasteners, etc. Vapor stops at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

2.2 DUCTWORK INSULATION

A. Glass Fiber Blanket

1. Glass fiber blanket insulation shall be insulated with 0.75 pcf (12 kg/m³) density, FSK-faced fibrous glass duct wrap insulation having a k-value of .28 Btu•in/(h•ft²•°F).
2. The duct wrap insulation shall consist of a blanket-type insulation composed of wool-type glass fibers firmly bonded with a thermosetting resin. Duct wrap material shall be factory-laminated to a scrim reinforced, foil-kraft (FSK) vapor retarder facing have a 2" (51 mm) stapling flange on one edge.
3. When installed in accordance with recommended installation procedures, duct wrap insulation shall provide installed R-values as follows:

DENSITY	LABELED THICKNESS	INSTALLED R-VALUE
.75# (12 kg/m ³)	1-1/2" (38 mm)	4.2
.75# (12 kg/m ³)	2" (51 mm)	5.6
.75# (12 kg/m ³)	2-1/8" (54 mm)	6.0
.75# (12 kg/m ³)	2-1/4" (57 mm)	6.5
.75# (12 kg/m ³)	2-1/2" (64 mm)	7.0
.75# (12 kg/m ³)	3" (76 mm)	8.5
1.0# (16 kg/m ³)	1-1/2" (38 mm)	4.5
1.0# (16 kg/m ³)	2" (51 mm)	6.1
1.5# (24 kg/m ³)	1-1/2" (38 mm)	4.8
1.5# (24 kg/m ³)	2" (51 mm)	6.4

B. Fiberglass Duct Board

1. Material to be high-density fiberglass duct board with foil kraft laminate facing, reinforced with scrim. Maximum thermal conductivity (K-value) at 75°F (24°C mean temperature to be 0.23 Btu – in/hr. – sq. ft. -°F (0.035 w/m - °C) when tested in accordance with ASTM C518 or ASTM C177.



C. Application

Service	Material	Insulation Thickness (inches)
Heated or Cooled Supply Air Ducts, concealed in unconditioned spaces, including shafts and hung ceilings	Glass Fiber Blanket	1-1/2
Heated or Cooled Supply Air Ducts, in hung ceilings used as Return Air Plenums	Glass Fiber Blanket	3/4
Heated Supply Air Ducts exposed in unheated space	Glass Fiber Board	1-1/2
Cooled Supply Air Ducts exposed in unconditioned space	Glass Fiber Board	1-1/2
Return & Relief Air Ducts from heated or cooled spaces in unconditioned spaces including shafts and hung ceilings.	Glass Fiber Blanket	1
Return and relief air ducts from heated or cooled spaces in exposed locations.	Glass Fiber Rigid Board	1
Outside Air Intake Ducts & Plenums from intake louver to supply system.	Glass Fiber Rigid Board	1-1/2
Outside air ducts in shafts.	Glass Fiber Blanket	1-1/2
Outside air ducts in hung ceilings	Glass Fiber Blanket	2 layers – 1-1/2 in. each
Unused portion of louvers where blanked off with sheetmetal	Glass Fiber Rigid Board	1-1/2
Exhaust or Relief Air Ducts from automatic louvered damper to discharge at exterior openings	Glass Fiber Rigid Board	1

- D. Rigid Glass Fiber Board to be six (6) pound per cu. ft. density with factory applied white fire-retardant jacket (ASJ). Apply with mechanical fasteners. Seal joints and breaks.
- E. Ventilating systems (which are neither heated nor cooled) supply ducts need not be insulated.



2.3 EQUIPMENT INSULATION

A. Materials

Service	Material	Insulation Thickness (inches)
Flash tanks, condensate tanks, hot water expansion tanks	Glass Fiber Board, or Calcium Silicate	1
Chilled water expansion tanks	Glass Fiber Board	1
Chiller Evaporator	Glass Fiber Board	2
Chilled and condenser (free cooling only) water pumps	Custom Fit Cover	2
Chiller Evaporators heads and water boxes, Chilled water plate heat exchanger	Custom Fit Cover	2

- B. Cold Equipment: Glass fiber vaporseal board, 6 pounds per cu. ft. density faced with foil skim kraft jacket. Finish with 1/2 inch thick cement over vaporseal mastic and copper clad hexagonal wire.

2.4 CUSTOM FIT COVERS

- A. Materials: All materials shall be new and undamaged. "Off spec" materials shall not be acceptable. Trade names and manufacturers referred to in this specification are intended to ensure a minimum quality of materials for construction. Any supplier or manufacturer not listed shall be submitted for approval before construction. Detailed information on fire resistance, thermal efficiencies, tensile strength and tear strengths shall be made available by a representative of the company upon request.

B. Components:

1. Cover:

- a) Inner Jacketing: 18 oz. color-coded Teflon fiberglass cloth.
- b) Gussets: 18 oz. color-coded Teflon fiberglass cloth.
- c) Insulation: Chilled water systems: 2" thick fiberglass insulation
- d) Outer Jacketing: 18 oz. color-coded Teflon fiberglass cloth.
- e) Sewing Thread: 0.021-20# tensile strength Teflon coated fiberglass thread.



- f) Steam Attachments: 18 oz., color-coded Teflon belts with stainless steel double D-rings and Velcro tabs.
- g) I.D. Tags: 304 stainless steel plate with 1/4" embossed lettering. The tags shall be of sufficient size to allow imprinting of the vital identification legend and shall be permanently attached to the insulation cover with stainless steel rivets.
- h) Terminal Ends: 18 oz. color-coded Teflon cloth flaps with Nomex drawcord.
- i) All Hardware: 304 stainless steel.

2. Innerjacketing, Gussets, Outer Jacketing, Seam Attachment and Terminal Ends

A. Material shall be of impregnated Teflon fiberglass cloth with a nominal weight of at least 18 oz. per square yard and a service temperature rating of at least 550°F. Teflon coated fiberglass cloth shall be orange, yellow, dark green and dark blue in color manufactured by one of the following:

- | | |
|----------------------------|-------------|
| B. Manufacturer: | Trade Name: |
| 1). Alpha Associated, Inc. | FCF 1800 |
| 2). Textiles Coated, Inc. | EJ 1800 TM |
| 3). Owens Corning | |
| 4). Or approved equal. | |

3. Insulation

A. Ceramic wool insulation shall be 2" thick and shall have a density of not less than 8# per cubic foot. Ceramic insulation shall be manufactured by one of the following:

- | | |
|------------------|-------------|
| B. Manufacturer: | Trade Name: |
|------------------|-------------|



- 1). Premier Refractories & Chemicals Cerea-WoolR
 - 2). Great Lake Textiles K-Lite RT
 - 3). Owens Corning
 - 4). Or approved equal.
4. D-Rings
- A. D-rings for use with seam attachment shall be welded double D-shaped rings of .12" o greater diameter Type 304 stainless steel wire.
5. Velcro
- A. The Velcro fastening system for securement of loose strap ends and closing system for small covers shall be of heat and flame-resistant nylon. This material shall be a minimum of 1" wide and suitable for attachment by sewing. The Velcro shall be manufactured by the following:
- B. Manufacturer: Trade Name:
- 1). Velcro USA, Inc. Hook #80, LOOp#2000
 - 2). Aplex, Inc. Aplex 820
 - 3). Duragrip
 - 4). Or approved equal.
6. Draw Cord
- A. The draw cord for cinching of cover terminal ends around adjacent insulation, valve packing, etc., shall be of 3/16" braided Nomex cord.
7. Sewing Thread
- A. This material shall be .021 – 20# tensile strength Teflon coated fiberglass suitable for machine stitching, and have a service temperature rating of at least 600F. The thread shall be manufactured by one of the following:



B. Manufacturer:	Trade Name:
1). Alpha Associates, Inc.	Alpha D1-18
2). Filtech	Style E-18
3). Champion Thread	
4). Or approved equal.	

8. Identification Tags

A. The identification tags shall be of Type 302 or 304 stainless steel plate with 3 inch embossed lettering. The tags shall be of sufficient size to allow imprinting of the vital identification legend and shall be permanently attached to the insulation cover with stainless steel rivets.

C. Construction

1. Covers shall be constructed as a preformed single piece cover and the closing seam shall be located at the gravitational bottom.
2. All valves covers shall be manufactured as one (1) piece body and bonnet.
3. Individual covers thereof shall not weight more than 75#. All seams shall be sewn using a locked stitch with a minimum of eight (8) stitches per inch. The thread must be able to withstand the full process temperature without degradation.
4. Hog rings or staples shall not be used as a method of seam closure.
5. Insulation within the jacket shall be held in place with stainless steel quilt pins to prevent shifting.
6. Quilt pins shall not pierce the outer skin of the covers.
7. Cinch belts and Velcro flap shall be used to hold the cover in place. Belts shall be made of outer jacket materials and two stainless steel D-ring fasteners. Velcro hook and loop fasteners shall be used to secure end of belts to cover after cinching.
8. Belts and D-Rings and Velcro flaps shall be used on all parting faces. Securement of the belts and Velcro flap traps to the weather barrier (outer skin of the cover) shall be sewn to the cover and shall be sufficient to withstand the stress of removing and reinstalling the cover. Belts length and the number of straps utilized shall be sufficient to affect a snug and proper fit without gaps or sagging of the cover.
9. Each cover shall have a S.S. tag affixed to it identifying its type, size and location.



2.5 MANUFACTURERS

- A. Insulation
 - 1. Owens-Corning Fiberglass
 - 2. Johns-Manville
 - 3. Armstrong
 - 4. Certain-Teed
 - 5. Knauf
 - 6. Or approved equal.

- B. Adhesives and Sealers
 - 1. Benjamin Foster (H.B. Fuller Co.)
 - 2. Rubatex
 - 3. Minnesota Mining and Mfg. Co. (3M)
 - 4. Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION - GENERAL

- A. Perform work in strict accordance with the manufacturer's recommendation and the best practice of the trade and the intent of this specification.
- B. Ensure that insulation is clean, dry, and in good mechanical condition with all factory-applied vapor or weather barriers intact and undamaged. Wet, dirty, or damaged insulation shall not be acceptable for installation.
- C. Apply insulation over clean dry surface, butting sections or surfaces firmly together and finishing as specified.
- D. Seal vapor barriers in a continuous manner throughout against moisture penetration.
- E. Insulation to be continuous through wall, floor and ceiling openings or sleeves. Do not cover any nameplates or identification tags.



3.2 INSULATION OF DUCT WORK AND FITTINGS

- A. No insulation shall be installed until ductwork has been pressure tested or leak tested as specified elsewhere to the satisfaction of the Commissioner.
- B. Before applying duct wrap, steel metal ducts shall be clean, dry, and tightly sealed at all joints and seams.
- C. All portions of duct designated to receive duct wrap shall be completely covered with duct wrap.
- D. To ensure installed thermal performance, duct wrap shall be cut to “stretch-out” dimensions as follows (P = perimeter of duct in inches/mm):

Labeled Thickness	Average Installed Thkns.	Thickness Calculation To Arrive at Correct Installed Thickness		
		Round Duct	Square Duct	Rectangular Duct
1-1/2" (38 mm)	1.125 (29 mm)	P+ 9.5" (241 mm)	P+ 8.0" (203 mm)	P+ 7.0" (178 mm)
2" (51 mm)	1.5" (38 mm)	P+ 12.0" (305 mm)	P+ 10.0" (254 mm)	P+ 8.0" (203 mm)
2-1/4" (57 mm)	1.69" (43 mm)	P+ 13.5" (343 mm)	P+ 11.5" (292 mm)	P+ 9.0" (229 mm)
2-1/2" (64 mm)	1.88" (48 mm)	P+ 14.5" (368 mm)	P+ 12.5" (318 mm)	P+ 9.5" (241 mm)
3" (75 mm)	2.25" (57 mm)	P+ 17.0" (432 mm)	P+ 14.5" (368 mm)	P+ 11.5" (292 mm)

- E. A 2" (51 mm) piece of insulation shall be removed from the facing at the end of the piece of insulation to form an overlapping stapling and taping flap
- F. Install duct wrap insulation with facing outside so that the stapling flap overlaps the insulation and facing at the other end of the piece of duct wrap. Adjacent sections of duct wrap insulation shall be tightly butted, with the 2" (51 mm) stapling and taping flap overlapping. If ducts are rectangular or square, install so insulation is not excessively compressed at corners. Seams shall be stapled approximately 6" (152 mm) on center, with 1/2" (13 mm) minimum, steel, outward-clinching, staples.
- G. Where a vapor barrier is required, seams shall be sealed with pressure-sensitive tape matching the insulation facing, either plain foil or fil-scrim-kraft (FSK). Seal all tears, punctures, and other penetrations of the duct wrap facing with tape or mastic to provide a vapor-tight system.
- H. Wherever external duct insulation is specified and internal acoustic treatment of equivalent insulating effect is also required (by Drawings or Specifications) for the same location, the external insulation may be omitted.
- I. Cover ductwork exposed to outdoor conditions, including spaces ventilated with outdoor air, with an additional 2-inch thickness of rigid glass fiber board 6 lbs./cu.ft., faced with factory applied all-service jacket.



- J. Apply vaporseal board by mechanical fasteners such as fastening pins and speed washers. Seal joints with an adhesive, as approved and reinforced with a glass cloth membrane over vinyl mastic, or self-sealing matching tape. Butter pinheads with an adhesive, as approved. If vaporseal board is wired, use tin edges to protect the corners of the board. Seal edges and joints.

3.3 PIPING INSULATION

- A. No insulation must be installed at fittings and joints until the piping systems have been hydrostatically tested as specified elsewhere to the satisfaction of the Commissioner.
- B. Provide insulation for removable flanges of pipe strainers on cold services with built-up sections of glass fiber pipe covering, arranged to facilitate servicing of the strainer. Complete applications with vaporseals. Vapor barriers to be sealed and continuous through hangers, walls, sleeves, etc. Adhesives and coatings to be as noted herein.
- C. Insulate fittings, flanges, valves, etc. for services where calcium silicate insulation is specified with mineral wool cement of equal thickness to the pipe insulation and finished with glass cloth.
- D. Piping Exposed to Outdoor Conditions, Pipes in Spaces that are not heated and Pipes Subject to Freezing: Cover piping with an additional layer of 2 inches glass fiber insulation of the same finish as specified for the particular service in paragraph 2.1, but not less than 3 inches total thickness. All piping subject to freezing will be insulated with a minimum of 2" fiberglass.
- E. Insulate heat-traced piping as specified for piping exposed to outdoors. Cover with an aluminum jacket, as specified for piping exposed to the outdoors.
- F. Notify Commissioner of any leaks in pipe or joints. Do not insulate until leaks have been repaired. Replace all insulation dampened by leaks.
- G. Apply prefabricated sectional insulation for straight pipes neatly fitted around the piping, and sealed with adhesive. Apply adhesive to only one side of each joint and not to pipe surface.
- H. Seal all joints with fire resistant vapor barrier mastic. Where required, oversized pipe sections or board type insulation may be used to fabricate and install insulation around pipe specialties. All void space must be firmly filled with flexible insulation to support oversized pipe insulation.
- I. Maintain the integrity of factory-applied vapor barrier jacketing on all pipe insulation, protecting it against puncture, tears or other damage. All staples used on cold pipe insulation shall be coated with suitable sealant to maintain vapor barrier integrity.
- J. Secure sectional insulation with 0.02" thick by 1/2" wide aluminum bands, or nylon ties, on 24" centers for pipe sizes 2" and larger. Install at least two (2) bands per section of insulation.
- K. Insulate cold water ball valves with 3/4" thick flexible elastomeric sheet insulation (ASTM C534) or approved equal as detailed on the Drawings. Finish insulation with two (2) coats of protective coating.
- L. Insulate cold water vertical riser support clamps.



- M. Insulate and thoroughly vapor seal control valve bodies where the valve actuator penetrates the insulation.
- N. Replace any self-sealing insulation and/or lap that is found to be not sealing properly. Do not use staples to secure the insulation, lap, or coverings.

3.4 PROTECTION OF INSULATION

- A. Protect pipe covering at hangers, guides, and roller supports with 16 gauge galvanized metal shields or saddles (at least 3 times the insulation diameter in length and 1/3 the insulation circumference in width) on the outside of the insulation and vapor barrier. Hold shields in place with straps. Do not pierce the insulation with hangers. Where glass fiber insulation is used on piping 3 inches and larger, provide half-section of calcium silicate covering of equal thickness at metal shields.
- B. Piping Exposed to Outdoors: Cover insulated piping exposed to outdoors or called for to be weatherproofed, in addition to finishes specified, with an aluminum jacket including all fittings.
- C. Exposed insulated piping in parking garages shall be provided with an aluminum insulation jacket.
- D. Exposed insulated piping in mechanical equipment rooms located 8 feet or less above the floor or where subject to traffic shall be provided with an aluminum insulation jacket.

3.5 INSPECTION

- A. Upon completion of installation of duct wrap and before system operation is to commence, visually inspect the system and verify that duct insulation has been correctly installed.
- B. Open all system dampers and turn on fans to purge all scraps and other loose pieces of material from the duct system. Allow for a means of removal of such material from the duct system.
- C. Check the duct system to ensure that there are no air leaks through duct joints.
- D. Fill surface imperfections such as chipped edges, small joints or cracks and voids or holes with insulation material and smooth all such areas with a skim coat of insulating cement.

3.6 SAFETY PRECAUTIONS

- A. Insulation contractor's employees shall be properly protected during installation of all insulation. Protection shall include proper attire when handling and applying insulation materials, and shall include (but not be limited to) disposable dust respirators, gloves, hard hats, and eye protection.
- B. The insulation contractor shall conduct all job site operations in compliance with applicable provisions of the Occupational Safety and Health Act.

END OF SECTION 23 07 00



**SECTION 23 09 00
INSTRUMENTS**

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

- A. Provide instruments in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Thermometers and Temperature Wells.
- B. Hydronic Pressure Gauges.
- C. Test Plugs.
- D. Air Pressure Gauges.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings: Submit shop drawings of instrument display boards, along with other shop or field fabricated installations.
- C. Product Data: Submit manufacturer's latest published data for instrument types, materials, accessories and installation.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Instruments are to be factory calibrated for the temperature and pressure of the systems in which they are installed.
- C. Instruments to be industrial quality.



PART 2 - PRODUCTS

2.1 THERMOMETERS AND TEMPERATURE WELLS

- A. Provide duct thermometers of the dial face type, 3" diameter, bimetal hermetically sealed. Accuracy is to be factory calibrated to $\pm 1^\circ\text{F}$, for the average temperature of the system in which it is installed. Construction to be stainless steel with external calibration adjustment.
- B. Provide pipe insertion thermometers of the 9" mercury red reading scale, 2°F increments separable socket, adjustable angle with brass stem. Provide the following socket lengths:

Pipe Size	Insertion Length
4" and 5"	2½"
6" and 8"	5"
10" and over	7"

- C. Provide pipe surface mount 2" diameter thermometers of the strap on, spring held type with insulating cup. Spring shall be stainless steel with thermoplastic seating cup and heat treated bimetallic sensor in accordance with ASTM bimetal TM-2.
- D. Provide thermometers with ranges as follows:
 - 1. Duct Systems: 25° to 125°F.
 - 2. Chilled Water Systems:
 - a. Mercury: 0° to 120°F.
 - b. Dial: 0° to 150°F
 - 3. Condenser Water Systems:
 - a. Mercury: 0° to 120°F.
 - b. Dial: 0° to 150°F
 - 4. Hot Water Systems:
 - a. Mercury: 30° to 240°F
 - b. Dial: 70° to 370°F
 - 5. Secondary Water Systems:
 - a. Mercury: 30° to 240°F
 - b. Dial: 50° to 250°F



6. High Temperature Hot Water Systems:
 - a. Mercury: 100° to 600°F
 - b. Dial: 70° to 500°F
- E. Manufacturers
 1. Weiss
 2. Trerice
 3. Taylor
 4. Ashcroft
 5. Weksler
 6. Or approved equal.

2.2 PRESSURE AND COMPOUND GAUGES

- A. Provide gauges of the bourdon tube type with minimum 4" dial and die cast aluminum case with black enamel finish. Gages shall have safety blow-out back. The movement to be all stainless steel with Grade A phosphor bronze bourdon tube brazed at socket and tip. Provide accuracy of the gauge within 1% of the scale range. The pointer will be the micrometer adjustment type recalibrated from the front.
- B. Pressure gauges installed at pumps shall be liquid-filled type.
- C. Provide needle-type isolation valves at each pressure gauge.
- D. Manufacturers
 1. Weiss
 2. Trerice
 3. Taylor
 4. Ashcroft
 5. Weksler
 6. Or approved equal.



2.3 TEST PLUGS AND KITS

- A. Provide test plugs ½" NPT made of brass body and cap with hydrocarbon rubber core.
- B. Provide six (6) gauge kits consisting of:
 - 1. (1) ¼" NPT pressure gauge with minimum 4" dial face with a range of 0 psi to 250 psi,
 - 2. (1) ¼" NPT compound gauge with minimum 4" dial face with a range of -15 psi to +30 psi,
 - 3. (2) Ball valves, (1) needle valve, (3) ¼" coupling adaptors, (3) ½" x ¼" bushings,
 - 4. (3) ¾" x ¼" bushings, (3) 3 foot long flexible hoses with female threaded swivel couplings, auxiliary test cock, (1) stainless steel 1" dial face stem thermometer minimum 4" long with a range of 0° to 220°F, (1) adjustable angle stainless steel stem thermometer with minimum 3" dial face with 4" stem with a range of 0° to 250°F.
 - 5. A shock resistant molded plastic case with foam inserts and carrying strap.
- C. Manufacturers
 - 1. Test Plugs
 - a. MG Piping Products
 - b. Ernst
 - c. Weksler
 - d. Texas Fairfax
 - e. Or approved equal.
 - 2. Test Kits
 - a. Gage IT, Inc.
 - b. Tel Tru
 - c. PTC
 - d. Weksler
 - e. Weiss
 - f. Or approved equal.



PART 3 - EXECUTION

3.1 GENERAL

- A. Provide local panel for mounting of duct thermometers located next to air handler which it serves. Locate panel so that length of capillary tubing is held to a minimum. Mount panel on supports and fasten securely to structure. Thermometers to be provided in each system as follows:
1. Upstream of each heating coil bank. Range 0 – 100F
 2. Downstream of each heating coil bank. Range 0 – 160F
 3. Upstream of each cooling coil bank. Range 0 – 100F
 4. Downstream of each cooling coil bank. Range 0 – 100F
 5. At each return air fan inlet. Range 0 – 100F
 6. At each supply air fan discharge. Range 0 – 160F
 7. At each supply air fan inlet. Range 0 – 160F
 8. At each outside air intake. Range – 40 to 160F
 9. Where shown on Contract Documents.
- B. Provide pipe thermometers and thermometer wells in the inlet and outlet at each of the following locations:
1. Heat exchanger. (both sides)
 2. Chilled water coil.
 3. Hot water coil.
 4. Refrigeration machine evaporator and condenser.
 5. Hot water boiler.
 6. Where shown on the Contract Documents.
- C. Test plugs to be provided at inlet and outlet of each water coil (including unit heaters, cabinet heaters, fan coil units, etc.).
- D. Provide pressure gauges at the following locations:
1. Upstream and downstream of all coils, strainers, controls valves and pumps, heat exchangers, refrigeration machines (evaporator condenser, hot water generator), steam boiler, cooling tower.



2. Chiller plant chilled water supply and return.
 3. Secondary chilled water supply and return piping.
 4. Steam header leaving the boiler plant.
 5. Where shown on contract drawings.
- E. Provide differential pressure gauges piped and mounted at an observable location in the following locations:
1. Chilled water headers serving individual secondary chilled water zones distribution.
 2. Chilled water headers at chiller.
 3. Condenser water headers at chiller.
- F. Provide air pressure gauges at the following locations.
1. Upstream and downstream of all filter banks, coils.
- G. Install recording instruments as described herein.
1. Install instruments flush mounted on a 10 gauge steel display panel complete with supports and braces. Submit the entire panelboard and arrangement for approval prior to fabrication.
 2. Locate measuring instruments at the point of measurement with a signal transmitted to receiving instruments, for indicating and recording, mounted on the display panel.
 3. Furnish ink and one year's supply of charts for each recorder.

END OF SECTION 23 09 00



SECTION 23 09 23
BUILDING AND MANAGEMENT CONTROL SYSTEM (BMCS)

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 GENERAL DESCRIPTION

- A. This specification for a Building Automation System (BAS) as detailed herein shall be strictly enforced.
- B. Prior to starting any work, purchasing of equipment, etc., coordinate the work with other trades. Confer with other contractors whose work might affect this installation; arrange all parts of this work and equipment of others with the building construction and with architectural finish so that it will harmonize in service and appearance. In the event there is a conflict in coordination between trades, the Commissioner will resolve it.
- C. Interruption of existing building services in order to make new connections to existing piping, ducts, etc. shall not be done without approval. All existing service shut-downs shall be supervised and as directed by the Commissioner. The subcontractor shall submit request at least 48 hours prior to any requested shutdown.
- D. All parts of the work and associated equipment shall be tested and adjusted to work properly and be left in perfect operating condition.
- E. When conflicts occur in the specifications or on the drawings, or between either, the items of greater quantity or higher cost shall be provided.
- F. The subcontractor shall provide all items of labor or materials not specifically indicated, but required to complete the intended installation.
- G. The work under this contract shall be performed and coordinated simultaneously with work of other trades so as not to delay the overall progress of work.
- H. This subcontractor shall be responsible for his work with its completion and substantial completion and shall replace any of the same which may be damaged, lost or stolen, without additional costs to the City of New York.
- I. The control system for this project is an extension of the existing Honeywell based TEC Systems Building Management and Control System (BMCS). The controls subcontractor for this project shall be properly trained by the existing Honeywell system manufacturer, with authorized access to the original system. It shall be the subcontractor's responsibility to obtain the existing as built condition drawings and specifications from the building management and/or the manufacturer's representative to facilitate the integration of the new devices.
- J. New Direct Digital Control (DDC) controls provided for this project shall be fully compatible with the existing system.



- K. Subcontractor shall submit an architectural diagram of their existing system, and highlight the additions to that system as a result of work performed under this project. Similarly, where points are brought to an existing Direct Digital Control (DDC) panel, the ENTIRE panel with all connections (new and existing) shall be illustrated. All new wiring to the panel shall be highlighted in a manner to easily show the difference between existing and new work.
- L. Upon approval of shop drawings, and completion of the work on the existing system, the controls subcontractor shall append the existing O&M Manuals with updated control diagrams, revise all graphics in the system to reflect the changes made to the system, program all alarm limits and alarm messages, and instruct the operating personnel on all changes and modifications. As a requirement for completion, the BMCS operators must sign off that all programming, changes and instructions were completed satisfactorily.
- M. As part of this contract, the subcontractor shall fully instruct the Commissioner and Facilities Personnel on the entire system as described herein.

1.3 WORK INCLUDED

- A. The work under this Section of the specifications includes all labor, materials, wiring, equipment and services to provide the work described within these specifications and Contract Drawings and subject to the terms and conditions of the Contract. The work in general consists of the following:
 - 1. The work includes, but is not limited to the following:
 - a. Automatic temperature controls and/or Building Management and Control System extensions including all associated wiring, cabling, programming, and setup.
 - b. Provide all miscellaneous field device mounting and interconnecting wiring for all mechanical systems (e.g. - chillers, pumps, water treatment, expansion tanks, VFD, filtration systems, terminal units, chiller control system, etc) as applicable.

1.4 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Installation of the following items furnished under this Section but installed under Division 23 Mechanical.
 - 1. Automatic Control Valves
 - 2. Automatic Control Dampers
 - 3. Thermowells
 - 4. Temperature Sensor Wells and Sockets
 - 5. Air Flow Measuring Stations
 - 6. Liquid Flow Sensors
 - 7. BTU Meters
 - 8. Liquid Flow Switches



9. Liquid Pressure Sensors
 10. Factory Mounted Direct Digital Controller controls and sensors (e.g. – factory installed VAV box controllers).
- B. Supervise and coordinate the installation of equipment, instruments and materials furnished under this Section but installed under other Divisions of the specifications. All equipment and instruments shall be installed in strict accordance with the manufacturer's published installation instructions.

1.5 VERIFYING EXISTING CONDITIONS

- A. The subcontractor shall visit the premises to determine existing conditions and compare same with drawings and specifications and satisfy himself of all conditions prior to the submission of a bid proposal.
- B. The subcontractor shall visit the premises to determine access of material and equipment to the final installed location prior to submitting his bid.
- C. No allowances will be made for failure to comply with these requirements and a bid proposal shall be construed as evidence he has done so.
- D. Retain all existing mechanical work outside the project area unless otherwise noted.
- E. Maintain service continuity to all areas not being renovated.
- F. Where existing piping is extended, modified, and/or deleted, existing piping remaining shall remain intact and leak free. This requirement covers all piping, including pneumatic air piping (if any).

1.6 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Complete full size drawings, 11 in. x 17 in. minimum. Each system shall be submitted separately. Do not submit "typical" system as one drawing unless the systems depicted are identical with the exception of Direct Digital Controllers and Processing units point addresses. In such cases, provide a schedule on the drawing with rows and columns for each device in each system detailing part numbers, point addresses, etc.
- C. Submit one copy of certified equipment manufacturer's data sheets. Data sheets shall either have all non-applicable information crossed out, or all applicable information highlighted in yellow highlights. Data sheets shall be arranged first by manufacturer, alphabetically, then by part number. If there are multiple parts by a single manufacturer, arrange data sheets in model number numerical order, Consecutively number each page and provide a cover sheet labeled (Manufacturer's Data Sheets. Provide an index so that each control device can be found in the index, It shall not be necessary to look for a data sheet by paging through the data sheets.
- D. Shop drawings and data sheets shall be submitted for approval prior to fabrication, erection or purchase.



1.7 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. After final test and adjustments fully instruct The Commissioner's operating personnel in all details of operation for equipment installed. A signed receipt, which shall be obtained from the Commissioner, shall be construed as evidence that instructions were satisfactory.
- B. Furnish three (3) copies of written descriptions of all systems covering all manual operating procedures, automatic control descriptions, and automatic control temperature and pressure settings. Written descriptions of operation, as-built shop drawings, data sheets, wiring diagrams, manufacturers recommended operating and maintenance instructions, spare parts recommendations, and troubleshooting diagnostic instructions. They shall be clearly marked to indicate applicability.
- C. Furnish three (3) copies of APPROVED "As Built" automatic temperature controls or BMCS extension details. If an existing BMCS was extended under the requirements of this project, the existing system shall be fully illustrated, and the extension / modification highlighted and included in the O&M instruction.

1.8 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. The control system for this project is an extension of the existing Honeywell Building Management and Control System (BMCS). The controls subcontractor for this project shall be an authorized representative of the existing system manufacturer, with authorized access to the original system. The subcontractor performing the work of this section must, within the last (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. The subcontractor must be licensed or approved by the manufacturer of the system.
- C. Materials and equipment shall be the catalogued products of manufacturers regularly engaged in production and installation of automatic temperature control systems and shall be manufacturer's latest standard design that complies with the specification requirements.
- D. The subcontractor shall provide an experienced Project Manager for this work, responsible for direct supervision of installation and startup of the system.
- E. Comply with requirements of NFPA, UL, MEA/OTCR.

1.9 WORK PERFORMANCE SCHEDULE

- A. A time-phased schedule for delivery, installation, and acceptance of components for the complete system shall be prepared in accordance with the requirements of the subcontractor. Submit this schedule to the subcontractor or Commissioner within thirty (30) days after award of contract. Submit updates and changes to this schedule promptly to the Commissioner.

1.10 SENSORS AND CONTROL DEVICES GENERAL

- 1. Provide sensors and control devices as indicated on mechanical plans, control flow diagrams and as required to meet specified performance. Where performance specifications exceed capabilities of



hardware specified, performance governs. The installation of such devices shall be the responsibility of this contractor.

2. Where high accuracy is required equip analog sensors with industry standard 4 to 20 mA or 0-10Vdc transmitters with built-in circuit protection against reverse polarity and supply voltage transients. The transmitters to be matched to the sensing element and compatible with the Direct Digital Control and Processing Unit.
 3. All sensor/transmitters assemblies shall be factory calibrated.
 4. All sensor wiring, analog or binary, input or output, shall be capable of sharing single conduit runs without affecting signal performance.
 5. The sensor range and type to be suitable to the application.
 6. Minimum contact rating of relays and switches shall be 4 amp 120 volts resistive.
 7. Devices UL listed for electrical safety where applicable.
 8. All components of sensors exposed to process shall be rated to withstand 150 percent of maximum process temperature and pressure.
- B. Thermowells
1. Provide stainless steel thermowells for each immersion type temperature sensor and switch. Thermowells shall have extension for pipe insulation and threaded connection to pipe. Threaded connection shall be a minimum of 1/2 in. NPT. Maximum insertion length shall be 6" or 3/4 the pipe diameter whichever is smaller.
- C. Temperature Sensors
1. Temperature sensor assemblies shall consist of a 100 or 1,000 OHM platinum RTD sensor and a solid state, protected in a housing suitable for the environment in which it is installed. Provide 2-wire, 4-20 mA transmitters where called for in the contract documents. Approved sensor - subcontractor's standard temperature sensor or Minco AS2 or AS3 series, Ebtron, Honeywell or approved equal.
 2. Outside air sensors shall be mounted on a northern exposure and mounted within a ventilated enclosure. Indicate exact location in shop drawings. Approved sensor - contractor's standard temperature sensor or Minco TT809PW4.001EN2, Ebtron, Honeywell or approved equal.
 3. Terminal unit space temperature sensors may be thermistor type, minimum 10K with and accuracy of +/- .5 deg. F and a stability of .25 deg F over a minimum of five years. Approved sensor - contractor's standard temperature sensor or Minco TT859PW1H1, Automated Logics, Honeywell or approved equal.
- D. BTU Energy Measuring Station



1. The entire BTU Energy Measuring Station shall be built and calibrated by a single manufacturer, and shall consist of a flow meter, two temperature sensors, a BTU meter, temperature thermowells, and all required mechanical installation hardware. A certificate of NIST* traceable calibration shall be provided with each system.
2. The BTU meter shall provide the following points both at the integral LCD and as outputs to the BMCS: Energy Total, Energy Rate, Flow Rate, Supply Temperature and Return Temperature. Output signals shall be either network interface (protocol conforming to BACnet MS/TP or BACnet/IP) and/or via individual analog and pulse outputs. Each BTU meter shall be factory programmed for its specific application and shall be re-programmable using the front panel keypad (no special interface device or computer required).
3. Temperature sensors shall be loop-powered current based (mA) sensors and shall be bath-calibrated and matched (NIST* traceable) for the specific temperature range for each application. The calculated differential temperature used in the energy calculation shall be accurate to within +0.15°F (including the error from individual temperature sensors, sensor matching, input offsets, and calculations).
4. The flow meter shall be Clamp-on Transit Time Ultrasonic Flow Meter, complete with matched transducers, self-aligning installation hardware and coaxial transducer cables. The flow meter shall be installed without making any openings in the pipe wall and shall utilize non-wetted ultrasonic transducers that may be located up to 300 ft from the meter. Ultrasonic transducers provided must be optimized for the specific pipe & process conditions for each application and the transducer frequency shall be automatically matched to the resonant frequency of the pipe at start-up. An integral auto-zero function shall be provided for zero precision and high accuracy, even at very low flow velocities. The flow meter shall be capable of measuring bi-directional flow. Accuracy shall be within $\pm 1\%$ of rate from 1 to 40 ft/sec and ± 0.01 ft/sec for velocities below 1 ft/sec. Overall turndown shall exceed 400:1 installed either in the supply or return pipe of the system to be measured.
 - a. Electromagnetic and Turbine type insertion meters shall be considered. Turbine type shall not be acceptable for use in open loop condenser water applications.
 - b. The Contractor shall coordinate the exact locations of each meter including straight pipe lengths needed for proper installation with the Contractor. The Contractor is responsible for the piping required to accommodate the meters properly.
5. Manufacturers include: Onicon, Flexim, Honeywell or approved equal.

E. Air Flow Measurement Station (Fan Inlet)

1. Each thermal dispersion fan inlet sensor shall be designed specifically to be mounted directly in the inlet bell of centrifugal fans. The sensor probes shall utilize two "bead-in-glass" thermistors to determine the airflow rate and temperature at each sensing location. Accuracy shall be plus or minus 2 percent of reading. Provide model GTx116 transmitter. Each transmitter shall produce a linear, temperature compensated, output corresponding to the required velocity pressure measurement. Provide BACnet MSTP port for connection to BMCS.
2. Provide Ebtron Gold Series, GE, Honeywell or approved equal.



F. Air Flow Measurement Station (Duct Mounted)

1. Each insertion station shall contain an array of sensor probes, each containing one bead in glass hermetically sealed thermistor. The sensing elements shall be distributed across the duct cross section in a quantity to provide accurate readings. Station construction shall be suitable for operation at airflow from 0 up to 5,000 fpm over a temperature range of -20 to 160 degrees F, and accuracy shall be plus or minus 2 percent of reading. Provide model GTx116, Ebtron, GE, Honeywell or approved equal transmitter. Each transmitter shall produce a linear, temperature compensated, output corresponding to the required velocity pressure measurement. Provide BACnet MST/IP port for connection to BMCS.
2. Provide Ebtron Gold Series, GE, Honeywell or approved equal

G. Water Flow Proving Switch

1. Flow switch shall have the following features;
 - a. Stainless steel bellows, NEMA 5 (IP54) enclosure
 - b. Pipe connection – 1" MNPT for pipe sizes 1" to 8"
2. Manufacturers
 - a. Caleffi 626600A, Ebtron, Honeywell or approved equal

H. Differential Pressure Transmitter Assembly - Water

1. Assembly shall consist of a differential pressure sensor and an electronic 2-wire, 4-20 mA transmitter assembly enclosed in a gasketed, dust and watertight case. All body cavities open to the process fluid shall be provided with drain ports at the cavity bottom and vent ports at the top of the cavity. Both drain and vent ports shall be minimum 1/4" NPT.
2. The transmitter shall be capable of sustaining differential pressures in either direction, up to the body rating without damage to the instrument, loss of accuracy, or zero shift. Provide a sensor with a minimum accuracy of $\pm 1\%$, a linearity of $\pm 0.1\%$, a repeatability of $\pm 0.1\%$, and a hysteresis of $\pm 0.1\%$.
3. The transmitter shall be fully compensated for both process and ambient temperature variations. The transmitter shall be furnished complete with input gauges and factory mounted 3-valve manifold.
4. Manufacturers:
 - a. Siemens
 - b. Rosemont
 - c. Johnson Controls
 - d. Or Approved equal



I. Differential Pressure Switch - Liquid

1. Shall be Penn Model P74, Ebtron, Honeywell or approved equal.

J. Differential Pressure Switch - Air

1. Shall be diaphragm operated and actuate a SPDT snap-acting switch. Operating point shall be adjustable. Range shall suit application.
2. High and low sensing ports shall be 1/8" NPT or 1/4" compression connected to angle type tips designed to sense pressure.
3. Switches used for fan shutdown shall be manual reset type.
4. Manufacturers:
 - a. Dwyer
 - b. Johnson Controls
 - c. GE
 - d. Or Approved equal

K. Differential Pressure Switch - Filters - Non-Indicating

1. Shall be diaphragm operated to actuate SPDT snap-acting switch. Operating point shall be adjustable. Setpoint shall be indicated on visual scale. Range shall suit application.
2. High and low sensing ports shall be 1/8" NPT connected to angle type tips designed to sense pressure.
3. Manufacturers: Dwyer Series 1638, Cleveland AFS series, GE, Honeywell or approved equal.

L. Differential Pressure Switch - Filters - Indicating

1. The differential pressure sensor shall be configured for air pressure ranges as low as 0.1 in. W.C. full scale, with Pascal ranges as low as 25 Pa full scale.
2. Static standard accuracy is 1.0% full scale in normal ambient temperature environments. The units are temperature compensated to within 0.02%FS/°F (0.036%FS/°C) for zero and span.
3. Utilize an all stainless steel micro-tig welded sensor. The tensioned stainless steel diaphragm and insulated stainless steel electrode, shall position under pressure to form a variable capacitor.
4. Manufacturer: Setra, Siemens, Johnson Controls or equivalent approved equal.



M. Level Switch

1. Float type level switch with SPDT snap acting contacts. Electronics shall be housed in a watertight enclosure.
2. Manufacturers:
 - a. McDonnell & Miller
 - b. Delta.
 - c. Honeywell
 - d. Or Approved equal.

N. Damper End Switch

1. Switch shall be actuated by the damper blade reaching the position specified in the sequences of operation required for the next step of control to be completed.
2. Provide encapsulated mercury type switch shall be model TS-470 or non-mercury TS-475 as manufactured by Kele, Ebtron, Belimo or approved equal.

O. Low Limit Thermostat

1. Shall have a 20-foot flexible vapor charged element. When temperature sensed by any 12 in. segment of the element falls below setpoint (usually 40°F), thermostat shall operate DPDT manual reset contacts.

P. Leak Detector Switch

1. Probe type liquid detector. Adjustable detection level. Relay outputs allow the unit to simultaneously alarm the BMCS while shutting down the system.
2. Manufacturers: Liebert LT410, Kele WD-1B, Honeywell or approved equal.

1.11 AUTOMATIC DAMPERS

- A. Provide and install automatic dampers.
- B. Install damper actuators of sufficient quantity and size to limit leakage to specified rate. Damper assemblies consisting of multiple damper sections to be provided with at least one damper actuator per section or be connected with an approved jack shafting arrangement.
- C. Include actuator torque capacity in submittals.



- D. Dampers used in smoke applications shall be UL rated smoke dampers. Where the return fan of an Air Handling Unit is used for smoke removal, the return air damper shall be a smoke damper. In these cases, the return air damper shall be normally closed and held open by the control signal. In the event of a fire alarm that shuts down the air handling unit, the fire alarm system will interrupt the power to the actuator, and the damper will close. Similarly, the spill air damper will be normally open, held closed by the control signal. In the event of a fire alarm that shuts down the air handling unit, the fire alarm system will interrupt the power to the actuator, and the damper will open. During all other times, the damper will be open, closed or modulating based upon the control signal to the damper. During normal shutdown, the return air damper will open and the spill air damper will close unless otherwise directed in the sequences of operation.
- E. Coordinate with Specification 23 33 13 entitled "Dampers".

1.12 AUTOMATIC VALVES

- A. Automatic control valves shall be globe type with modulating plug, throttling guides, replaceable seats and discs, and stainless steel stems or characterized flow control valves.
- B. Valves 2 in. and smaller may be characterized ball valves or globe type. Ball valves shall have nickel plated forged brass bodies, stainless steel stems and balls with fiberglass reinforced Teflon PTFE seals. Globe valves shall have bronze bodies with screwed ends. Valves 2½ in. and larger shall be globe type with iron bodies with flanged ends.
- C. Valve body rating shall be equal or greater than the piping in which it is installed and the valve shall be rated for operation against the maximum system differential pressure. Rangeability shall be at least 40 to 1 or as required to provide proper control. Leakage shall not exceed 0.01 % of rated CV for single seated valves and 0.5% of rated CV for double-seated valves.
- D. The valves shall be quiet in operation and fail safe in either normally open or normally closed position in the event of a power failure. Valves capable of operating at varying rates of speed to correspond to the exact dictates of the controllers and variable load requirements, and shall be capable of operating in sequence when required by the sequence of operation. Submit valve close off pressure ratings.
- E. Valve operators shall be of the electric, spring return type sized to insure tight seating against maximum differential pressure. Provide mechanical direct reading movement indicators on all valves 2½ in. or larger. Provide positive positioning relays on valves operated in sequence and all valves 2½ in. or larger.
- F. Characteristics
 - 1. Chilled Water Service: Equal percentage flow characteristics, single seated type. Provide double-seated type for high close-off pressure applications.
 - 2. Bypass Service: Linear flow characteristics. Single or double seated.
- G. Valve Action
 - 1. Cooling valves normally closed.
 - 2. Or as noted.



- H. Size valves to meet the coil loads as specified and as follows:
1. All valves shall be sized based upon data from approved equipment submittals.
 2. 2-Position Valves: Line size unless noted.
 3. Water Service: Maximum pressure drop shall be equal to the pressure drop of the associated coil or exchanger, or 5 psi whichever is greater.
 4. Relief and Bypass Valves: Sized according to pressure available.
 5. Chilled Water Service: Where load exceeds capacity of 4 in. control valve provide two valves operating in sequence the larger valve shall have a coefficient of flow (CV) that is between 2 and 3 times larger than the smaller valve.

1.13 BUTTERFLY VALVES

- A. Butterfly valves permitted for use for two-position operation on low temperature water applications only.
- B. All butterfly valves shall be of the full lug body style with lugs drilled and tapped and have drip tight shutoff capabilities in either direction up to and including maximum system working pressure. Butterfly valves shall be capable of closing tight after long periods of inactivity. All valve bodies 24 inch and above to be dual flanged. Flanges to be drilled through to ANSI Standards.
- C. All valves shall be suitable for use with ANSI Standards flanges. Bodies shall be semi-steel or cast iron.
- D. Valves shall provide tight shutoff up to the full valve rating on dead end or isolation service without the use of downstream flanges. Submit valve close off pressure ratings.
- E. All valves shall be furnished with self-lubricated bronze bearings. Shafts seals shall be provided to prevent leakage and to protect bearings from internal or external corrosion.
- F. Seats shall be of the reinforced resilient type (or retained seat on high performance valves) and shall also act as a body liner to prevent flow from contacting the body casting. Resilient seats shall have flange sealing lips to provide a positive seal without use of flange gaskets.
- G. Seats shall be suitable for use with HVAC water to 250°F. Shafts shall be one piece and shall of 416 stainless. Shafts shall be finish ground and polished to minimize bearing and shafts seal wear. Shafts of 8 inch and larger valves shall have a non-adjustable thrust collar.
- H. Discs shall be semi-steel with welded nickel edge. The disc-to-shaft connections shall be type 316 stainless steel. Pins, shaft and disc of all valves shall be individually machined and completely interchangeable.
- I. Provide valves with factory installed actuators of the electric or electro hydraulic type and sized for tight shutoff at maximum system differential pressure. Actuators for modulating service shall be equipped with integral position potentiometer. Provide actuators with an integral hand wheel or local manual controls for manual operation. Each actuator shall be equipped with adjustable limit switches. Input voltage shall be 24, 120, or 480 VAC, 60 HZ.



- J. Valves shall be line size unless otherwise noted on drawings.
- K. Manufacturers: Bray, Jamesbury, Posiseal, Belimo, Keystone, or approved equal.

1.14 GUARANTEE

- A. The Contractor will cause subcontractor to guarantee the BMCS to be free from defects in workmanship and material for a period of one (1) year from the date of substantial completion. During this period, the Contractor will cause subcontractor to furnish all labor to repair or replace all items or components, which fail due to defects in workmanship or material. Failures on control systems that include all computer equipment, transmission equipment and all sensors and control devices during guarantee period shall be adjusted, repaired, or replaced at no additional cost or reduction in service to City of New York.
- B. The Contractor will cause subcontractor to respond to service calls within four hours of the call either in person or through the dial up capabilities of the system. If the problem cannot be rectified on line, a physical presence shall be made within 8 hours of the initial call.
- C. The Contractor will cause subcontractor to update O&M manuals and system software backups to reflect any corrective measures taken during the guarantee period, which impact the hardware, software or system configuration.

1.15 LOCATION OF EQUIPMENT

- A. The drawings and specifications describe approximate locations of the work. Verify all locations in the field.
- B. Locate equipment and accessories to provide easy access for proper service and maintenance.

1.16 IDENTIFICATION OF EQUIPMENT AND CONTROLS

- A. All equipment, control panels, etc. shall be labeled with black Bakelite plates with white engraved upper case letters enclosed by white border on beveled edge screwed thereon, which shall indicate systems service.
- B. All valves (hand actuated or automatically controlled) shall be tagged with 2" brass plated tags and chains. A valve chart schedule for all valves, framed and wall mounted, shall be installed where directed. Coordinate with subcontractor.

1.17 INSTALLATION OF WIRING

- A. Provide wiring for control devices, monitoring devices, instrumentation, and interlocks as required for a complete system. Coordinate with Plumbing, Electrical and HVAC specifications for devices requiring wiring under this Section.
- B. Run all wiring in compliance with the requirements of the electrical specification (Division 26). Provide separate conduit for control wiring under this Section.



- C. Level 1 data network cable shall be run in conduit. Level 2 networks shall be installed using plenum rated cable where allowed by code, but always in EMT where exposed to damage and in all mechanical equipment rooms.

1.18 INSTALLATION OF CONTROL EQUIPMENT

- A. Device locations are the responsibility of the BMCS subcontractor. Group instrumentation on ductwork and fan casing in organized manner. Locations to be consistent for each type of system. Each control device, field or panel mounted, shall be identified by an engraved lamaroid nameplate permanently attached to its enclosure.
- B. Sensors mounted on air ducts having exterior insulation shall be provided with standoff spacers with insulating material firmly fitted around spacers.
- C. Averaging temperature and low temperature detectors shall be installed in serpentine fashion and supported by steel grid or multiple bulb holders. Minimum coverage for temperature sensors shall be 1 linear foot of sensor element per 4 sq. ft. of coil face area. For low limit (freezestats) 1 linear foot of sensor per sq. ft. of coil face area.
- D. Wall mounted sensors shall be installed to match existing conditions. Coordinate all locations with the City of New York / Commissioner. Provide insulated base where mounting on exterior wall is required. Provide metal guards where mounted in mechanical, electrical, storage and maintenance areas or in any area where subject to damage.
- E. Locate pressure transducers within 50 ft of sensing point. Connect to sensors with tubing of diameter recommended by sensor manufacturer and as required to prevent signal phase lag. Provide gauge tees at transducer for connection to pressure gauge.
- F. Digital Processing Units and Field Equipment Panels shall be located in approved locations adjacent to system served. Submit all locations for approval after coordination with all other trades.
- G. Panels shall not be located directly underneath valves or other areas where they may be subject to water or heat damage. In addition, panels shall be mounted with the bottom no lower than 3 feet and the top no higher than 7 feet above the floor, with a minimum of 3 foot clearance at the front.

1.19 INSTRUCTION

- A. As part of this contract, the subcontractor shall fully instruct the Commissioner and Facilities Personnel on the entire system as described herein.
- B. The subcontractor shall furnish the services of competent instructors who will give instruction in the adjustment, operation and maintenance, including pertinent safety requirements, of the equipment and system specified. The instruction shall be oriented toward the system installed rather than being a general instruction course. Each instructor shall be thoroughly familiar with all aspects of the subject matter they are to teach. All equipment and material required for classroom instruction shall be provided by the subcontractor.
- C. The instruction program shall be accomplished in two phases for the time interval specified for each phase.



1. The first phase shall be given prior to the acceptance test period at a time mutually agreeable between the subcontractor and the Commissioner and shall be at least five (5) days (8 hours/day) in length. Operating personnel to be instructed in the functional operations of the BMCS installed and the procedures that the operators will employ for system operation. The instruction shall include but not be limited to:
 - a. General BMCS Configuration
 - b. Operation of Computer and Peripherals
 - c. Command Line Mnemonics
 - d. Report Generation
 - e. Operator Control Functions
 - f. Graphics Generation
 - g. General equipment layout
 - h. Troubleshooting procedures
 - i. Preventive Maintenance procedures
 - j. Sensor maintenance and calibration
 - k. Proper use of service kit.
2. The second phase shall be conducted after system acceptance testing for a period of three (3) days. The instruction shall include but not be limited to:
 - a. DDCP Programming
 - b. Data Base Generation
 - c. Supervisory Level Operator Commands
 - d. Topics requested by Commissioner.

1.20 ACCEPTANCE TESTING

- A. The BMCS subcontractor shall provide all manpower as required to perform testing and coordinate with subcontractors to provide necessary support for complete testing of all system parameters.
- B. Submit a detailed acceptance test procedure designed to demonstrate compliance with contract requirements at least 4 weeks before the start of testing. This procedure to be approved prior to the start of the testing.
- C. During acceptance testing provide services of a fully qualified building automation technician who is knowledgeable of the project.



- D. Using the commissioning test data the Commissioner shall select, at random, functions to be demonstrated. These functions shall be demonstrated by the subcontractor in accordance with the acceptance test procedure. At least 15 percent of the systems functions as selected by the City of New York, or Commissioner shall be demonstrated. At least 95% of the functions demonstrated must perform as specified and documented on commissioning data sheets or the system must be retested.
- E. Furnish instruments required for testing. Submit catalog data on all instruments for approval prior to performance of tests.

Instrument Accuracy	
Temperature:	¼°F or 1/2% of full scale, whichever is less
Pressure:	½% PSI or 1/2% of full scale, whichever is less
Humidity:	2% RH
Electrical:	Class 0.5

- F. After the above acceptance tests are complete and the system is demonstrated to be functioning as specified, a thirty-day endurance test period shall begin. If the system functions as specified throughout the endurance test period requiring only routine maintenance and adjustment, the system shall be accepted. If during the endurance test period the system fails to perform as specified and cannot be corrected within eight hours, the City of New York may request that the endurance tests be repeated after problems have been corrected.

1.21 SEQUENCES OF OPERATION FOR SYSTEMS

- A. Refer to contract drawings for sequences of operation

**PART 2 - PRODUCTS
NOT USED**

**PART 3 - EXECUTION
NOT USED**



**Department of
Design and
Construction**

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**SECTION 23 11 13
SHEETMETAL, DUCTWORK AND ACCESSORIES**

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

- A. Provide all ductwork required to make the various air conditioning, ventilating and heating systems complete and ready for operation in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. General Ductwork.
- B. Round Duct.
- C. Duct Accessories.
- D. Outdoor Duct.
- E. Belt Guards.
- F. Access Doors.
- G. Flexible Connections.
- H. Plenums.
- I. Drain Pans.
- J. Duct Sealant.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings
 - 1. Submit sheetmetal shop details for approval before any duct layouts are submitted for review. Shop drawings will not be acted on before shop details have been reviewed.



2. Submit layouts of all ductwork drawn to a scale of 3/8" to the foot for approval.
3. Submit drawing of location and size of sleeves for openings in floors and walls.
4. Prior to ductwork fabrication, submit to the Commissioner review, complete certifications and data (in the English language) on all sheetmetal materials manufactured outside the United States.
5. Sheetmetal ductwork drawings serve as the base sheets for the Contractor Coordination Drawings. Submit ductwork shop drawings for review.

C. Samples

1. Submit samples of flexible ducting and special materials, as required by the Commissioner.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Construct ductwork according to the pressure-velocity classifications established by SMACNA, and as called for on the duct drawings.
- C. Construct ductwork in accordance with Table 1-5 of the 1995 SMACNA Manual for 2" static pressure ductwork and Table 1-6 of the 1995 SMACNA Manual for 3" static pressure ductwork, with the exception that tie rods may not be utilized in ductwork 60" wide and smaller.
- D. Provide flexible duct assembly listed as Class 1 air duct by the Underwriters Laboratories under UL-181 "Standard for Factory-Made Air Duct Material and Air Duct Connections" at a flame spread of not over 25 and a smoke developed rating of not over 50 complying with NFPA Standard 90A.
- E. Flexible air ducts to have a heat loss per foot of duct as measured by Air Diffusion Council Flexible Air Duct Test Code FD 72-R1 and be UL listed as Class I under UL-181.
- F. Comply with OSHA standards and requirements.

PART 2 - PRODUCTS

2.1 GENERAL DUCTWORK

- A. Construct sheetmetal ductwork of galvanized iron of gauges specified in SMACNA Tables 1-4 to 1-9, unless otherwise called for on the Drawings.
- B. Unless otherwise indicated or specified, construct all sheetmetal ductwork in accordance with the HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, Second Edition, 1995, published by the Sheetmetal and Air Conditioning Contractors National Association, Inc., and herein referenced as the SMACNA Manual. Various page numbers, table numbers, plate numbers, detail numbers, and figure numbers herein cited refer to this edition of the SMACNA Manual. Install all ductwork in accordance with the arrangements and sizes shown on the Drawings and as specified herein.



- C. Construct low pressure ductwork of "lock forming quality" galvanized steel of the gauge thickness listed in Tables 1-5 for the pressure class indicated of the 1995 SMACNA Manual with gauge tolerances as listed in Appendix A-2 of the 1995 SMACNA Manual. Comply with ASTM A-525 for all steel with a hot dipped galvanized coating weight that complies with the G90 section of ASTM A525 and ASTM 90.
- D. For rectangular ductwork, use radius elbows without vanes with centerline radius equal to 1½ times duct width. Where space is limited, use either curved elbow with single vane and with centerline radius not less than width of duct, or use square vaned elbow. For square elbows, use single thickness vanes for ducts up to 18 inches wide and double thickness airfoil vanes in ducts over 18 inches wide. Hold vanes in runners. See SMACNA Detail Fig. 2-3 and 2-4 of Standards. Construct turning vanes constructed of the same material as the ductwork in which they are installed.
- E. Alternative Joining
 - 1. At the Contractor's option, ductwork in sheetmetal gauges 16 through 26 may be joined at the transverse joints with pre-fabricated galvanized Ductmate-35 sections, or with fabricated TDF or TDC T-24 type flanged transverse joints with bolted corners, gaskets, and sealants, constructed in accordance with SMACNA Manual (1995), Table 1-12. Submit the joint packing material and joint construction details using this method and a 12" x 12" x 12" long duct sample to the Commissioner for review. Plastic joint clips are not acceptable. Do not join flanged and prefabricated joints by different manufacturers.
 - 2. Joining system must meet criteria as set forth in SMACNA Chapter 7.
 - 3. Install joining system according to manufacturer's instructions. Bolting of corners is required.

2.2 ROUND DUCTWORK

- A. Provide round duct gauges in accordance with Table 3-2 A and B of the 1995 SMACNA Manual. Provide girth reinforcing, girth joints, longitudinal seams, etc., in accordance with Figures 3-1, 3-2, 3-3, 3-4 and 3-5 of the 1985 SMACNA Manual. Snap-lock longitudinal seams are not acceptable. Draw band joint connection will not be acceptable. Use minimum 16 gauge galvanized steel with welded joint construction and companion flange joints for round duct over 52" in diameter.
- B. Use 5-piece or die-formed elbows up to 12 inch diameter. Use 7-piece on larger ducts with centerline radius equal to 1½ times duct diameter.

2.3 DUCT ACCESSORIES

- A. Provide spin-in fittings for connecting flexible duct to sheetmetal duct, incorporating die-formed locking groove with adjustable damper using spring loaded retractable bearing and positive locking regulator.
- B. Provide turning vanes in all 90° elbows where shown on the Drawings. Provide double fin type with 2" inside radius for small vanes (Figure 2-3) and 4½" inside radius for large vanes (Figure 2-3). Provide small vanes spaced no more than 2-1/8" apart for ducts up to 18" wide. Provide large vanes spaced no more than 3¼" apart for ducts 19" wide. Shop-fabricated turning vanes will not be acceptable unless they are machine shaped, punched and assembled. Use radius elbows where shown on the Drawings and for elbows 24" in



width and smaller. Use radius elbows in accordance with Type RE-1 and RE-3, in Figure 2-2 of the SMACNA Manual.

2.4 BELT GUARDS

- A. Provide guards on all belt drives. Provide split type with tachometer opening at shafts fabricated from galvanized metal and braced to prevent rattling.
- B. Use solid or expanded metal on motors up to 5 horsepower.
- C. Use expanded metal on motors 7½ horsepower and up.
- D. Use angle frames on motors 25 horsepower and larger.
- E. Provide sufficient space so that sheaves can be changed to larger sizes.

2.5 ACCESS DOORS IN SHEETMETAL

- A. Where required in ductwork or casings, provide suitable access doors and frames to permit inspection, operation and maintenance of apparatus concealed behind the sheetmetal work. Provide access doors in insulated ducts of insulated double panel construction, not less than 20 gauge, galvanized steel. Provide access doors in uninsulated ducts of single panel construction not less than No. 18 gauge, galvanized steel. Provide all access doors with sponge rubber gaskets around their entire perimeter.
- B. Hang access doors in ductwork in separate frames and attached to duct with aircraft type cable. Provide cast zinc latches one (1) per side.
- C. Install hinged walk-in type casing access doors where required and indicated on the Drawings. Construct casing access doors 57" high x 24" wide where possible and be complete with heavy duty hinges, hardware, latch handles or approved equal. See figures 6-11 and 6-12, and Table 6-2 of the 1995 SMACNA Manual.
- D. Where required in ducts carrying humid air, or grease laden air, locate access doors in the side of ducts.

2.6 FLEXIBLE CONNECTIONS

- A. Construct flexible connections of canvas for low pressure systems, of vinyl-covered fiberglass (or neoprene) Flexible connections must not contain asbestos and are to be suitable for the operating pressure and temperature of the system in which they are installed.

2.7 PLENUMS

- A. Provide air plenums for return and exhaust fans of "single casing" construction of No. 16 gauge galvanized iron braced and stiffened on outside by means of 2 inches by 2 inches by ¼ inch steel angles, or with standing seam panels not to exceed 26 inches in width.
- B. Provide discharge and intake air plenums for connecting the fresh air intake and discharge openings to the various systems, as shown on the Drawings, of No. 16 gauge aluminum construction, braced and stiffened on



outside by means of 2 inches by 2 inches by ¼ inch aluminum angles, or with standing seam panels not to exceed 26 inches in width.

2.8 AUXILIARY DRAIN PANS

- A. Construct drain pans of 16 gauge galvanized steel with all joints brazed. Construct pans watertight with hemmed edges.
- B. Under any equipment for which a pan is shown on the Drawings, and under all horizontal air handling units, duct mounted hot water or chilled water coils located above hung ceilings or electrical equipment, piping over electrical equipment, etc., furnish and install auxiliary drain pans. Extend the auxiliary drain pan at least 6" beyond the equipment it is serving and be at least 2" high.
- C. Provide drain pipe connections of at least 3/4", or as shown on the Drawings. Unless otherwise shown on the Drawings, route a 3/4" IPS galvanized steel or Type "L" copper tube to the nearest equipment room floor or hub drain independent of any air handling unit drains.

2.9 SCREENS

- A. Furnish and install all wire mesh screens indicated in the Construction Documents.
- B. Fabricate frame of extruded aluminum with mitered reinforced corners.
- C. Provide non-rewireable frame with permanently secured screen mesh.
- D. Provide mesh of ½ inch square, .063 inch intercrimped aluminum wire.

2.10 DUCT SEALANT

- A. Seal all joints and seams on medium and high pressure ductwork with an oil soluble elastomer sealant.
- B. Sealant to be fast curing to a firm rubbery seal and have gap filling properties with smooth easy caulking characteristics.
- C. Sealant to be gray in color.
- D. Manufacturers:
 - 1. 3M Fastbond 900
 - 2. Foster 32-14
 - 3. MEI 44-50
 - 4. Hardcast Sure Grip 404
 - 5. Or approved equal



PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Execute the Work in strict accordance with the best practices of the trade and with these Specifications. Ductwork leakage in excess of SMACNA Standards for the seal class listed will not be acceptable. Seal ductwork with an approved U.L. listed water base sealant as required to comply with this leakage requirement.
- C. Adhere to Drawings as closely as possible. The right is reserved to vary the runs and sizes of ductwork and to make offsets, where necessary to accommodate conditions arising at the building.
- D. Make joints and seams smooth on the inside and a neat finish on the outside. Make duct joints airtight with laps made in the direction of air flow and no flanges projecting into the air stream. Provide ducts adequately braced to prevent vibration. Provide intermediate reinforcing and/or tie rod construction where necessary. Seal joints and seams according to SMACNA Standards.
- E. Construct all longitudinal duct seams and joints as "Pittsburg Lock" or "Button Punch Snap-Lock" at the corners and Acme "Lock Grooved Seam" or "Automatic Seam Weld" in sides between corners. See Figure 1-5 of the SMACNA Manual. Provide sealant as required so that the leakage rates specified are not exceeded.
- F. On welded stainless steel ductwork, use extra low carbon grade steel (316L). All welds to be pickled to remove weld oxide. Passivate stainless surface after welding to remove embedded foreign material.
- G. Duct sizes indicated for internally lined ducts are the net duct dimensions. Increase ducts in both dimensions by twice the thickness of the liner making the actual sheetmetal dimension larger by thickness of the liner. Provide duct liner material and thickness as specified.
- H. Thoroughly clean the interior of all ductwork after installation, and prior to use. Operate all fans and remove all debris and foreign matter from the duct.
- I. Wherever it may be necessary to make provision for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers. Make all such streamlined sleeves airtight at top and bottom of ducts.
- J. Suspend all ductwork properly supported from the building structure. The duct hanging system is composed of three elements; the upper attachment to the building, the hanger itself, and the lower attachment to the duct. Construct the attachments, hangers and supports for all ductwork in accordance with Figures 4-1 through 4-9 and Tables 4-1 through 4-3 of the 1995 SMACNA Manual. Submit the details for the upper attachment to the building to the Commissioner.
- K. Provide galvanized angle iron and bands for ductwork bracing and support.



- L. Do not suspend ductwork or any device, or allow work installed by any trade to be suspended from ductwork (for example: lighting conduit, lighting fixtures, piping, ceiling construction, etc.)
- M. Provide supplementary steel as required to support ductwork with a maximum deflection of 0.08" with the supported load acting at the mid-span of the steel.
- N. Prior to mounting or hanging of mechanical equipment and ductwork, obtain approval from the Commissioner for proposed method of mounting and for exact location of all mounting points. Submit weights and location of all mechanical equipment and ductwork to the Commissioner for approval well in advance of general construction work to allow sufficient time for any structural analysis.
- O. Replace, without any additional cost to the contract, any ductwork or components found to be noisy after installation, with said noise resulting from faulty materials or workmanship.
- P. Cap openings in ducts during progress of construction tightly.
- Q. Where vermiculite, plaster, wire lath or lead wrapping is required to be applied completely about horizontal runs of ductwork (as indicated on the Drawings), provide all hangers and inserts for such ductwork of extra strength and rigidity to support same. Provide hangers for such ductwork as specified hereinafter except that hanger spacing be one-half that specified.
- R. Provide any ductwork passing through waterproof walls or roof construction with counterflashing.
- S. Provide approved firestopping material around all ducts penetrating floors, walls, roofs, etc., in accordance with NFPA, and Commissioner 's requirements.

3.2 RECTANGULAR SHEETMETAL DUCTWORK

- A. The ductwork on this project falls into classifications as indicated below. Each classification has positive and negative requirements as shown.

Ductwork	Pressure Classification "W.G."	Velocity Classification	Seal Class
Downstream of fan-powered terminal, pinch down VAV or PRV.	+1"	2500	A
Ductwork on the discharge of air handling units, except outside air handling units.	+2"	2500	A
Outside air and toilet exhaust ductwork on the building side of the volume damper on each floor.	+2" & -2"	2500	A
Outside air makeup and exhaust duct for smoke exhaust systems.	+2" & -2"	2500	A



Ductwork	Pressure Classification "W.G."	Velocity Classification	Seal Class
Outside air handling unit discharge ductwork, risers, and ductwork to the volume damper on each floor.	+3"	4000	A
Toilet exhaust ductwork, risers, and runouts to the volume damper on each floor.	-3"	4000	A
Stair pressurization ductwork.	+3"	4000	A

- B. Comply with the pressure class, seal class and velocity class listed for the construction in each classification. Cross-break or use mechanical transverse beading on rectangular ductwork 12" and wider and install as indicated on the Drawings and as specified. Make beading at least 1/16" deep at the center of the bead and a maximum of 3/8 inch wide at the base of the bead.
- C. Where tie rods are utilized, provide a fender washer and jam type lock on each side of the sheetmetal. Reinforce ductwork in accordance with SMACNA Table 1-10. Construct ductwork over 96" wide with T-24 type flanged transverse joints with bolted corners. In lieu of using tie rods, this ductwork may be constructed as follows for the size ranges listed if carefully coordinated with all physical space limitations.

Dimension of Longest Side of Duct	Supply or Exhaust	Sheetmetal Gauge	Minimum Reinforcing Size*	Maximum Reinforcing Spacing
96" - 110"	Supply	18	2"	30" CC
111" - 160"	Supply	16	4"	24" CC
161" - 180"	Supply	14	6"	20" CC
181" and Larger	Supply	14	8"	18" CC
* 16 gauge "Z" bar or 12 gauge angle.				

Dimension of Longest Side of Duct	Supply or Exhaust	Sheetmetal Gauge	Minimum Reinforcing Size*	Maximum Reinforcing Spacing
96" - 110"	Exhaust	16	2"	24" CC
111" - 160"	Exhaust	14	4"	20" CC
161" - 180"	Exhaust	12	6"	16" CC
181" and Larger	Exhaust	12	8"	14" CC
* 16 gauge "Z" bar or 12 gauge angle.				



- D. Fasten reinforcing to ductwork on 12" centers by bolting or welding reinforcing to the ductwork.
- E. Install duct connected grilles, registers and ceiling diffusers shown on the Drawings. Exact dimensions of openings must await approval of registers and diffusers. Submit exact locations for approval. Do not cut joints for the installation of outlets.
- F. Where possible, fabricate all ductwork in such a manner that seams and/or joints will not be cut for the installation of grilles, registers, or ceiling outlets. If cutting of seams or joints is unavoidable, properly reinforce the cut portion to original strength.
- G. For low pressure ductwork provide air extractors in branch ducts at connection to main ducts.

3.3 DUCT MOUNTED SMOKE DETECTORS

- A. Locate duct mounted smoke detectors in the ductwork in accordance with the manufacturer's recommendations and the requirements of NFPA.

3.4 FLEXIBLE CONNECTIONS

- A. Flexible connections to be approximately 6 inches long, after installation is complete securely held in place with heavy metal bands to prevent any leakage. Align ductwork and fans to be plumb prior to connection. Allow at least 1 inch of slack.
- B. Provide flexible connection in ductwork connected to the inlets and/or outlets of all air handling units, fans, etc., except fan air handling units with internal isolators and flexible fan connections. Overlap ends of fabric 2" and attached contact glue. Sewing or stapling will not be permitted. Allow at least one inch slack in all flexible connection installations to insure that no vibration is transmitted.

3.5 ACCESS DOORS IN SHEETMETAL

- A. Provide access doors not smaller than 18 inches by 18 inches. Ducts smaller than 18 inches are to be provided with access doors 2 inches smaller than the width by 18 inches long. Provide access to all fire dampers.
- B. Where removable hung ceiling panels are installed below access doors, provide markers showing the access door location clearly.

3.6 PLENUMS

- A. Provide standing seams with additional right angle bend and cap with No. 18 gauge galvanized "U" cap galvanized steel plenums for in-line centrifugal and axial flow fans.
- B. Provide the number of access doors as shown on the Drawings, minimum of one (1), for each sheetmetal plenum.
- C. Provide drain pan construction for air intake and discharge plenums; apply two (2) coats of mastic sealant to all joints; pitch bottoms for effective drainage.



3.7 DUCT SEALANT

- A. Clean and dry all surfaces thoroughly prior to application.
- B. Apply with caulking gun, trowel or spatula.
- C. Join surfaces to be sealed immediately after application of sealant.
- D. Follow manufacturers' instructions carefully for application, storage and cleanup.
- E. Do not use sealant which is beyond manufacturers recommended shelf life.

END OF SECTION 23 11 13



**SECTION 23 21 23
PUMPS**

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

- A. Provide pumps in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Vertical Split Case Pumps.
- B. Condensation Pump Units.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit manufacturer's latest data.
- C. Shop drawing submittals to indicate certified pump curves NPSH, pump performance characteristics with pump and system operating points plotted.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Select pumps to operate at or near their point of peak efficiency, allowing for operation at capacities of approximately 25% beyond design capacity. In addition, select the design impeller diameter so that the design capacity of each pump (GPM and TDH) does not exceed 85% of the capacity obtainable with maximum impeller diameter at the design speed for that model.
- C. In order to insure stable operation and to prevent any possibility of hunting, the pump curve must be continuously rising from maximum capacity up to the shutoff point.
- D. Make the entire pump assembly including, but not limited to, the casing or enclosure, suction and discharge flanges, and seals, suitable for operation with the "Pump Working Pressure" and temperatures indicated on the Drawings. For the purpose of this specification, the pump working pressure is defined as the sum of the scheduled maximum suction pressure and the maximum dynamic head at shutoff developed by the pump for



pumping duty specified. Test each entire pump assembly hydrostatically at the factory at least 50 psig pressure above the pump working pressure.

- E. Perform a complete factory electric operating and sequence test, capacity performance test, and hydrostatic test for each factory assembled pumping system prior to shipment. Include a system operating flow test from zero to 100% of design flow for the pumping unit with the specification suction and net discharge pressure conditions specified on the Drawings. Verify the accuracy of the system flow meter with an independent calibrated test flow meter. The factory operating and performance test may be witnessed by the Commissioner. Notify the Commissioner in writing at least three (3) weeks prior to the factory performance test. Before the pumping assembly is shipped from the factory, transmit certified factory performance test data for factory testing including flow, head, and horsepower at all flow rates on a plot of the system flow test. Certify that the pumps have been satisfactorily tested as specified hereinbefore and are in compliance with the requirements of the Contract Documents. Do not install the pumping system before the test data has been reviewed by the Commissioner.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide pressure gauge tap and cock on suction and discharge connection of each pump.
- B. Motors to be of such size that they will operate continuously without exceeding its H.P. rating, exclusive of service factor, at design capacity and head.
- C. Provide pump casing of close grained cast iron free from blow holes, sand pockets and other detrimental defects. Liquid passageways to be smooth and contoured to permit maximum efficiency. Casing to be designed for working pressure as scheduled and to be hydrostatically tested at 150% of the maximum working pressure. Suction and discharge flanges to be drilled to ANSI standards for operating pressure specified.
- D. Provide on the mechanical seals for each open system water pump, an impurity eliminator constructed throughout of 316 stainless steel and suited to the system scheduled working pressure. Factory pipe the impurity eliminator and provide with isolating ball valves and valved bypass piping. Piping to be Schedule 40 galvanized steel pipe.
- E. The impeller supplied for the specified conditions to limit shaft deflection at the seal to no more than .002 inches.
- F. For vertical split, in-line, and end suction pumps, manufacturers are:
1. Armstrong
 2. Bell & Gossett
 3. Buffalo Pump
 4. Weinman



5. Paco
6. Peerless Pump
7. Ingersoll Dresser
8. Or approved equal.

2.2 VERTICAL SPLIT CASE PUMPS

- A. Provide pumps of the single-stage vertical split case type with the split on the vertical axis. Suction and discharge connections to be located on opposite sides of the lower half casing, allowing removal of the rotating element without disturbing the system piping connections. Pump speed not to exceed 1750 rpm. The maximum brake horsepower requirements of the pump are to be below the service factor rating of the driver.
- B. Mount pump and motor on a common fabricated structural steel base furnished by the pump manufacturer. Provide in the base provisions for grouting and anchor bolts. Machine surfaces for the motor and pump mounting. Motor mounting to permit adjustment. Provide the base of sufficient strength to prevent vibration, warping, or misalignment of the pump and motor when installed without grouting.
- C. The impeller to be of the double suction type, made of cast bronze, and balanced hydraulically, statically, and dynamically. Key the impeller to the shaft and securely retain in an axial position by positive mechanical means.
- D. Seal the pump liquid cavity with a face type mechanical seal with corrosive resistant steel stationary seat, carbon washer, ethylene propylene flexible members, brass metal parts and 18-8 stainless steel spring. Seal to be mounted over a bronze shaft sleeve.
- E. Provide stainless steel pump shaft adequately supported by the pump bearings to limit the shaft deflection to .002 inches. Bearings to be the ball type, grease lubricated and locked to the shaft with positive locks of ample size to withstand any axial thrust loads. Bolt each bearing housing to the upper and lower casing halves for a full 360 degree support registered fit to insure positive alignment. Bearings to provide a minimum 100,000 hours average bearing life.
- F. Firmly attach bronze shaft sleeves to the pump shaft through threading and locking means. Shaft sleeve design shall prevent corrosion and wear to the shaft.
- G. Provide a flexible coupling. Each pump mounted with a driver to be equipped and shipped from the manufacturer with a coupling guard in place.



PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Rigidly bolt the pump base to the vibration isolation base and fill with concrete or grout after installation on the isolation base. After final alignment, dowel all pumps and motors 25 horsepower and over to the base. All vertically mounted pumps to be doweled into place after final alignment.
- C. The pump manufacturer to be responsible for aligning in the field prior to startup of flexibly coupled pumps. Alignment to be with dial indicator with accuracy of plus or minus .002 inch. The pump manufacturer must submit a written report certifying that the alignment work has been performed by his personnel and that the pumps are ready for operation.
- D. Pumps to be leveled up on tapered steel wedges in such manner to permit a minimum of 3/4 inch of grout between the pump base and the top of the concrete base.
- E. Pump motors are to be covered during construction period and if the motor has to be run the Contractor will be responsible to make sure that the area in which the motor is running is clean.
- F. Contractor to provide lifting eye ring above each vertical in-line pump to facilitate removal of motors for repair.
- G. Paint the entire assembly of each pump with two coats of enamel after shop testing.
- H. All operating controls and safety devices must be demonstrated after each system has been installed and put into operation at the project site.
- I. Provide drains for bases and stuffing boxes piped to discharge into floor drains.
- J. Provide air cock and drain connection on vertical pump casings.
- K. Provide pumps with bronze mesh start-up strainers. Contractor to remove fine mesh strainer after system has been flushed.

END OF SECTION 23 21 23



**SECTION 23 25 00
PIPE CLEANING AND CHEMICAL WATER TREATMENT**

PART 1 - GENERAL

1.1 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

- A. Provide flushing, cleaning and chemical treatment program in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Pipe Cleaning.
B. Cleaning Chemicals.
C. Water Treatment Chemicals.
D. Chemical Feed Equipment.
E. Water Treatment Testing Equipment.
F. Water Treatment Services.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit shop drawings listing chemicals and services provided for all systems. Provide layouts of feeding equipment, details of equipment and describing treatment program, including calculations and quantities of chemicals to be used. Provide system schematics showing the following:
1. Condenser Water System:
 - a. circulation rates
 - b. pressures
 - c. temperature differentials across cooling tower and condenser



2. Chilled Water and Hot Water Systems:

- a. volume
- b. circulation rates
- c. pressures
- d. temperature differentials

3. Steam Systems:

- a. steam rate
- b. pressure
- c. condensate return rate

- C. Provide written report containing log and procedure of system cleaning, giving times, dates, problems encountered and condition of water.
- D. Provide inspections and submit written reports on a twice monthly basis. Provide for one (1) year after acceptance of system. Take samples of water at each inspection, analyze, and certify. Submit the analysis made on the water to the Commissioner and the City of New York. Include in the analysis report, recommendations as to any changes in water treatment required. Provide an initial dosage of 1.5 gallons of an aqueous solution of sodium nitrite base corrosion inhibitor (Nalco 2536), or approved equal, for each 100 gallons of water in the system.
- E. Provide written maintenance instructions to be included in Maintenance and Operating Manual.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Retain a chemical company, from manufacturer list in clause 2.5 or approved equal, to provide water treatment, feed equipment, testing equipment and chemicals for the systems as defined herein and as may be required to maintain the integrity of the piping systems and mechanical equipment.
- C. The water treatment chemical and service supplier must be a recognized specialist, active in the field of industrial water treatment for at least three (3) years, whose major business is in the field of water treatment, and who has full time service personnel within proximity of the job site. Laboratory facilities must be available.
- D. Furnish and install all equipment and material on this project in accordance with the requirements suitable for its intended use on this project, approved by the U.S. Environmental Protection Agency (EPA), and local Department of Environmental Protection, and so certified by the manufacturer.



- E. Analyze water from the local water company to be used on the project, before establishing treatment procedures.
- F. Provide a two-hour instruction course to the City of New York's operating personnel, instructing them clearly and fully on the installation, care, maintenance, testing and operation of the water treatment system. Arrange the instruction course at the startup of the system.
- G. The contractor shall take the appropriate and required measures as to test, treat, document and report the installation of new cooling tower equipment and the presence of Legionella. Contractor shall follow all procedures and requirements outlined in ASHRAE 12 (latest edition), Article 28 of the Public Health Law and section 225(5)(a) of the Public Health Law, Part 4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York.

H. Treatment Standards

1. Condensing Water (Open):

	Control Level
Phosphate	5-10 ppm as PO ₄
Zinc	0.5-1.5 ppm as Zinc
Molybdate	3-7 ppm as MO
Tolytraizole	2-4 ppm as TTA
Polymer	4-8 ppm as Active
Legionella	<10 CFU/mL, per authority having jurisdiction requirements (i.e. NYC, NYS).

- a. Apply non-oxidizing Environmental Protection Agency Registered biocide when necessary.
 - b. Apply acid or alkali, if required, to be determined from an analysis of makeup water and local atmospheric conditions.
 - c. Actual cycles of concentration to be determined from an analysis of the makeup water.
2. Closed Recirculating Water Systems:



System	Treatment and Chemical Conditions	Control Level
Hot Water, Glycol, Chilled Water and Closed Condenser Water 140°F maximum	Non-toxic organic corrosion and scale inhibitor	2000 ppm as total organic inhibitor
	Molybdate as Na ₂ MoO ₄ or Nitrite as NO ₂	200-300 ppm 500-700 ppm
	pH	7.0-9.0
Hot Water over 140°F	Nitrate as NO ₂	1500-2000 ppm
	pH	8.0-10.0

3. Low Pressure Steam:

System	Treatment and Chemical Conditions	Control Level
Low pressure steam 15 psi maximum	Non-toxic organic and scale inhibitor	3000-4000 ppm as total organic inhibitor
	Molybdate as Na ₂ MoO ₄	400-600 ppm
	pH	8.0-10.0
	Nitrite as NO ₂ or Molybdate as Na ₂ MoO ₄	2500-3000 ppm 400-600 ppm
	pH - boiler water	7.0 minimum
	pH - steam condensate	7.5 to 8.5

PART 2 - PRODUCTS

2.1 PIPE CLEANING

- A. Furnish all required pipe cleaning chemicals, chemical feed equipment, materials, and labor necessary to clean the piping as herein specified. In addition, permanently install necessary chemical injection fittings complete with stop valves and coupon racks, etc.



- B. Provide a pre-startup non-foaming, liquid detergent dispersant cleaner for cleaning of all systems to remove oil and foreign matter from the piping and equipment prior to the final filling of the systems. Use a chemical that is not injurious to persons, piping, pipe joint compounds, packings, coils, valves, pumps and their mechanical seals, tubes or other parts of the system.
- C. Furnish instructions dictating the quantities of the cleaner to use, methods and duration of the operation.

2.2 WATER TREATMENT CHEMICALS

- A. Provide one-year's supply of necessary water treatment chemicals including the following:
 - 1. Closed System Treatment (Chilled Water, Closed Condenser Water and Hot Water): Agents to reduce scale deposits, to adjust pH and to inhibit corrosion. Treatment shall not contain any chromates or other toxic substances.
 - 2. Open Condenser Water System Treatment: Agents to adjust pH, corrosion inhibitor, and algacide. Biocides are to be alternated periodically to prevent algae from developing immunity. Materials shall not contain any chromates, mercury, tin, arsenic or any other toxic substances. Recommended biocides to be registered with the U.S. Environmental Protection. EPA registration numbers are to be clearly shown on all product literature and drum labels. Use proper chemistry to provide bacteria counts below 105 colonies per millimeter (aerobic and anaerobic).
 - 3. Steam System: Agents to scavenge oxygen, control hardness and alkalinity and inhibit corrosion. Use neutralizing amines as approved by USDA and USPHS.
 - 4. Open Systems (Humidifier/Dehumidifier): Agents to inhibit scaling and corrosion; provide alternating biocides.
 - 5. Propylene Glycol:
 - a. Provide a glycol solution where indicated on the Documents which will provide freeze protection to -20°F.
 - b. The fluid must be an industrially inhibited propylene glycol (phosphate-based). Specifically excluded are automotive antifreezes or any formulations containing silicates.
 - c. The fluid must be easily analyzed for glycol concentration and inhibitor level, and easily reinhibited using inhibitors readily available from the fluid manufacturer.
 - d. Fluid must be dyed a fluorescent color to facilitate leak detection.
 - e. If the system contains more than 250 gallons of fluid, annual analysis must be provided free of charge by the fluid manufacturer. Manufacturer must also provide convenient analytical test aids for use by the operator of a smaller system.
 - f. The fluid must pass ASTM D1384 (less than 0.5 mils penetration per year for all system metals).



2.3 CHEMICAL FEEDING EQUIPMENT

A. Open Condenser Water Treatment System

1. Provide and install an Automated Control System. As a minimum, this control system must accomplish the following:
 - a. Feed inhibitor chemicals in proportion to makeup water, flow measured by a contact head water meter.
 - b. Control bleed-off by conductivity in a preset range.
 - c. Feed two biocides on a programmed basis.
 - d. The water treatment vendor must provide detailed specifications for this controller.
2. Additionally, at a minimum, the equipment furnished shall provide for the functions listed below and shall include all controls, tanks, pumps, sensors, probes, analyzers, water meters, valves, etc. necessary to perform the water treatment functions required. Functions to be performed include:
 - a. Automatic control of cooling tower bleed-off.
 - b. Automatic control of chemical treatment.
 - c. Water meter with contacting head in make-up line to measure water usage and control chemical feed in the cooling tower.
 - d. 4-20 mA output. 0 to 800 ohm loop resistance. 24 VDC supply included. 35C - conductivity, 35P - pH-signals for computer.
 - e. Corrosion monitoring - readout and alarm.
 - f. A prefabricated chemical pump rack pre-wired and pre-plumbed with the controller to complete the chemical treatment system.
3. Include in controller sensor package:
 - a. Remote conductivity amplifier assembly.
 - b. Remote pH amplifier assembly.
 - c. Remote corrosion rate amplifier assembly.



4. Run a total of three (3) shielded 2-wire cables from the cooling water sensor package to the receiving controller. Enclose the pH and conductivity sensors in a lockable NEMA 4X fiberglass sensor cabinet. The sensors shall feature 4-20 mA outputs isolated from the cooling water. Provide accuracy and repeatability of 0.1% of full scale. Provide the condenser flow transmitter of the vortex shedding type mounted in the condenser water line. Terminate the two wires from the amplifier with other cables in the sensor cabinet.
5. General Specifications:
 - a. Accuracy: 0.5% of full scale.
 - b. Repeatability: 1% of full scale.
 - c. Deadband: 0.5% of full scale.
 - d. Output Current: 3 amps inductive at 115 volts.
 - e. Feed Limit Timer: 0 to 100 minutes continuous operation, Auto reset.
 - f. Conductivity:
 - 1) Scale: 0 to 5000 micromhos.
 - 2) Sensor: dense carbon electrodes.
 - g. pH:
 - 1) Range: 0 to 14 pH.
 - 2) Low pH Alarm: 5.5 pH adjustable.
 - 3) pH Sensors: Glass Sensor 700181 refillable reference.
 - h. Flow switch maximum pressure 1000 psi, 3/4" butt-welded branch connection main condenser header. Disables all power outputs if the sample water flows stop.
6. Conductivity Control of Blowdown:
 - a. Sensor Assembly: O-ring sealed PVC sensor body with carbon electrodes. Automatic temperature compensation. Ring lock mechanism to secure the sensor and to provide for easy sensor removal.
 - 1) Pressure Rating: 150 psi at 120°F maximum.
 - 2) Mount sensor in the return to the cooling tower. Provide and install all wiring and all accessories required to transmit the signal to the water treatment system located where indicated on the Drawings.



- b. Conductivity Sensor: Blind conductivity sensor with isolated 4-20 mA output.
 - 1) Accuracy: 0.1% of full scale.
 - 2) Repeatability: 0.1% of reading.
 - 3) Mount conductivity sensor in the return to the cooling towers. Provide and install all wiring and all accessories required to transmit the signal to the water treatment system located where indicated on the Drawings.
 - c. Controller: "ON-OFF" controller with adjustable set point.
 - 1) Range: 0 to 5,000 micromhos.
 - 2) Accuracy: 0.1% full scale.
 - 3) Repeatability: 10 micromhos.
 - 4) Outputs: Relay to operate solenoid valve, 10 amp 4-20 mA output to operate in proportional mode.
 - 5) Alarm Timer: 0 to 100 minute timer to limit the chemical inhibitor per blowdown cycle.
 - 6) Provide "Auto-Off-Manual" switch style operators and pilot light for each function.
 - d. Bleed Valves: Furnish a pilot operated, normally closed valve with solenoid actuator of appropriate size and install where indicated on the Drawings to accomplish automatic blowdown. Provide the combination pressure reducing and solenoid shutoff bleed valve of the single seated, hydraulically operated, pilot-controlled diaphragm type globe valve with stainless steel trim, opening and closing speed control, and suitable for the working pressure of 150 psig. Furnish solenoid valve. The pressure reducing bleed valve shall have an adjustable output pressure range of 20 to 100 psig and shall be factory set at 20 psig.
7. pH Control of Alkalinity:
- a. Sensors:
 - 1) Glass Electrode: pH.
 - 2) Reference Electrode: Separate double junction reference.
 - 3) Body: PVC with lock ring mechanism for cleaning.
 - 4) Rating: 150 psi at 120°F maximum.



- b. Controller: ON-OFF control of an acid pump.
 - 1) Accuracy and Repeatability: 0.01 pH.
 - 2) Resolution: 0.01 pH.
 - 3) Stability: 0.001 pH/day.
 - 4) Display Range: 0-14 pH.
 - 5) Control Range: 0-14 pH.
 - 6) Output: 4-20 mA proportional control, 10 amp relay acid pump output.
 - 7) Alarm-Timer: 0-100 minutes to limit continuous acid feed.
 - 8) Auto-Off-Manual oil-tight style switch operator and run light.
 - c. Provide four (4) chemical pumps as manufactured by Milton Roy, Neptune, LMI or approved equal. Furnish all connecting tubing, foot valves, etc., with this package. Provide each pump suitable for operation with the chemical being pumped and have an adjustable output capacity range as follows:
 - 1) Two (2) pumps for 6-43 gpd.
 - 2) One (1) pump for 1.7 gpd.
 - 3) One (1) pump for 1.7 gpd.
 - 4) The injection pressure of each pump shall be suitable for the specified working pressure of the condenser water system specified in the Section entitled "Design Conditions".
8. Inhibitor/Dispersant Feed System:
- a. Inhibitor feed method shall be "Inhibitor fed proportionally to blowdown time".
 - b. Inhibitor and dispersant feed times if fed proportionally to the cooling tower bleed.
 - c. Dispersant method is factory set to feed from the inhibitor signal.
9. Biocide Chemical Feed System:
- a. Display the clock time of day continuously with the process variable display. Program two (2) biocides by the day of the week and the time of day.
 - b. During biocide feed, lock out all other chemical feed and blowdown.



- c. The switch contact ratings and the chemical feed pump specifications are the same as for the other chemical feed systems.
10. Supervisory Corrosion Monitor:
 - a. An independent corrosion monitor shall continuously monitor the cooling water for an excessive corrosion sensor assembly.
 - b. If an excessive corrosion situation should occur, the monitor shall:
 - 1) Lock out all chemical feed and force blowdown the cooling water.
 - 2) Actuate an alarm light.
 11. Controller Cabinet Construction: Provide a 14 gauge steel NEMA 4 window door controller cabinet to enclose all components. Provide an additional watertight enclosure with keylock doors, to enclose all the controller electronics for additional protection and security. Auto-Off-Manual switch run lights to indicate all power outputs. In addition, include LED indicators of output status on the controller subpanel visible to the operator with the controller door closed.
 12. Prefabricated Chemical Feed Rack and Controller Enclosure:
 - a. Provide NEMA 4 controller enclosure.
 - b. Provide plastic coated rectangular welded steel floor chemical pump rack mounted on a chemical pump shelf. Provide safety Plexiglas shield and chemical pump discharge tubing shield to protect the operator from discharge line failure. Provide PVC chemical pump shelf and rain shield. Plumbing and injection fittings for five (5) chemical pumps are required.
 13. Chemical pumps shall be of heavy duty construction. The recommended pumps will maintain an output 1.3 times the pressure of the system in which it is injecting chemical. Supplier must choose pumps in order for chemical to enter the system in an efficient manner.

B. Closed Recirculation Water Systems

Provide and install an Automated Control System. As a minimum, this control system must accomplish the following:

1. Feed inhibitor chemicals in proportion to makeup water, flow measured by a contact head water meter.
2. Must be completely adjustable to deliver 0.5 to 2.0 times the amount of normal dosage to keep inhibitor level in range.
3. Pump pressure must be rated 1.3 times the normal system operating pressure.
4. Meter must be full flow sized to the make-up water line.



- C. Manufacturers
 - 1. Grundfos
 - 2. Nalco
 - 3. Tower Water
 - 4. Or approved equal

2.4 WATER TREATMENT CONTROL TESTING EQUIPMENT

- A. Provide test equipment described hereinbefore and as follows:
 - 1. Supply a one-year's quantity of testing chemicals to properly analyze the treated water for pH, molybdate, chlorine, nitrite, phosphate and sulfite. Furnish the necessary test kits for these tests complete with instruments, reagents, materials and supplies.
 - 2. Provide a conductivity meter, 0-2500 range, MICROMHOS/CM auto-temp compensation 50°-160° F, with 9-volt transistor batteries.
 - 3. Furnish a supply of log sheets on which to record the test results and bound copy of full test instructions.
 - 4. Provide and install a corrosion coupon test rack as directed with four (4) insert positions for steel and copper coupons furnished by the water treatment company, and to be inspected every 90 days. Test rack to comply with ASTM D-2688 Method B.
 - 5. For steam systems, provide basic water test equipment, in lighted test cabinet and reagents for use with supplier's products. This shall include apparatus for determination of pH, P and M alkalinity, chlorite, sulfite and treatment residual. Where specialized or supplementary equipment is required, furnish it as a part of this Section.

2.5 MANUFACTURERS

- A. Water treatment program to be provided:
 - 1. Tower Water Management
 - 2. Nalco
 - 3. Metropolitan Refining Co.
 - 4. Hayes-Trane, Mogul
 - 5. Tenco
 - 6. Or approved equal.



PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Install all equipment, chemicals, water devices, etc. in accordance with water treatment specialist's directions and drawings, for all systems previously noted. Contractor will provide 1-inch taps to bring system water to desired locations. Minimum 2 on each main supply and return on closed loop systems. Minimum 4 on each main supply and return on open loop systems.
- C. pH adjustment, inhibitor and dispersant tanks shall be shipped in use containers. Pump suction assemblies previously specified will pump directly from these shipping drums.
- D. Installation and startup shall be supervised by factory representatives of the equipment manufacturer and chemical manufacturer.
- E. Shipping containers shall be disposed of or refilled off the premises at no additional cost.
- F. Contractor shall follow all procedures and requirements outlined in ASHRAE 12 (latest edition), Article 28 of the Public Health Law and section 225(5)(a) of the Public Health Law, Part 4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York. This includes, but is not limited to, the registration/reporting of cooling tower data, Legionella culture samples, cleaning/disinfection requirements, inspection data/reports, and strict maintenance program plan as required.

3.2 WATER TREATMENT PROGRAM

- A. Obtain an approved representative sample of the water supply and perform the following analyses:

Analysis	Submittal Concentrations
Sodium	ppm as Na
Silica	ppm as SiO ₂
Calcium	ppm as Ca
Magnesium	ppm as M _n
Iron and aluminum oxides	ppm as Fe ₂ O ₃ AL ₃ O
Bicarbonates	ppm ca CaCO ₃
Carbonates	ppm as CL
Phosphates	ppm as PO ₄
Carbon dioxide (free CO ₂)	ppm



Analysis	Submittal Concentrations
Total hardness	ppm as CaCO ₃
Total dissolved solids	ppm
Suspended solids	ppm
Free acid	ppm as CaCO ₃

- B. Based on this analysis prepare and submit a water treatment program for approval.

3.3 PRELIMINARY CLEANING

- A. Clean new piping internally by flushing prior to the application of pressure tests, and before the chemical cleanout procedures specified herein. Provide temporary strainers at the inlet to the chilled water, condenser water, and hot water pumps before the start of cleaning procedures.
- B. Block off and isolate circulating pumps, cooling coils, heating coils, heat exchangers, and steam traps during the preliminary flushing and draining process.
- C. Provide temporary by-passes to fully circulate through all branch piping.

3.4 PIPE CLEANING

- A. All Piping Systems
1. Provide temporary connections with valves to fill and drain the piping and equipment after completion of the chemical cleanout procedure. Provide temporary blind flanges and/or caps to isolate the piping and equipment.
 2. Provide temporary piping connections, valves, strainers, bypasses, and blank connections where required to clean out systems.
 3. After each hydrostatic leak testing procedure is complete, drain the system until empty. The piping systems are internally chemically treated and protected during the hydrostatic testing procedure as described in the Section entitled "Testing, Balancing and Adjusting". Thoroughly clean the piping and flush as follows:
 - a. Cleaning will not take place more than 14 days prior to startup. Give the chemical manufacturer's representative at least 30 days' notice prior to startup.
 - b. Prior to the start of the chemical cleaning procedure submit three - two (2) foot lengths of the piping installed on this project to the chemical manufacturer for analysis of the interior coating on the piping. Refer to the Section entitled "Testing, Balancing and Adjusting" for additional requirements.



- c. Add chemical pipe cleaning compound and corrosion inhibitor as recommended by the chemical manufacturer's representative to the system simultaneously with the filling of the system.
- d. Circulate the cleaning compounds in the system for the time period specified by the chemical manufacturer.
- e. Drain the system until empty from its lowest point.
- f. Fill the system again with fresh water and flush thoroughly until clean water is obtained. (Maintain continuous blowdown and make-up as required during flushing operation). Use a one (1) micron cartridge type strainer element at end of drain hose to confirm that discharge water is free of foreign material.
- g. The cleaning and flushing procedure must be approved in writing by the chemical manufacturer. The chemical manufacturer's representative shall supervise and certify in writing the cleaning and flushing of the piping systems. The Contractor shall provide and install injection pumps, water meters, and coupon racks to control and monitor the cleaning process.

B. Steam Systems

1. When steam system is ready for operation, open a point in the system that all condensate will flow through, and run the condensate to the drain for a minimum of 24 hours. During the period the condensate is running to drain, run necessary tests including TDS (total dissolve solids), trace metals acidified, suspending solids, etc., at least twice a day. At the point the condensate is running clear, has no trace metal count and no suspended solid count, the steam system will be considered clean and the condensate will be allowed to return to the system.
2. Isolate and bypass steam traps. Mix the condensate with cold water in a barrel or container so that the temperature of the mixture does not exceed 120°F and discharge to the sewer.

C. Open Condenser Water Systems

1. Fill system completely.
2. Use a high surfactant/phosphonate cleaner.
3. Have units by-passed.
4. Circulate water with high levels of cleaner for appropriate time: (Circulation Rate = 50 GPM).

a.	System	Volume	Time
b.	50-250	Gallons	0.5-1.5 hours
c.	250-750	Gallons	1.0-2.0 hours
d.	750-2500	Gallons	2.5-3.5 hours



- e. 2500-5000 Gallons 4.0-6.0 hours
- 5. Test system pH at 60 minute intervals, pH should be above 10.0 while cleaning is taking place, unless water is flowing through a galvanized tower then pH remains between 7.0-8.0. Add more chemicals, to keep pH level. Have anti-foam on-site to prevent pump cavitation.
- 6. Flush entire system with fresh water to reduce pH within 0.5 pH of incoming water and test system pH, conductivity, alkalinity, iron, copper, and phosphate.
- 7. Treat with water treatment chemicals at three (3) times the normal dosage.
- 8. Clean and flush circulator.

3.5 FILLING OF WATER SYSTEMS

- A. After completion of chemical cleanout, fill each water system with fresh water, air vent, and immediately add chemical treatment to passivate metal.
- B. Furnish the following chemicals as required for the system until the Commissioner has issued a "Certificate of Substantial Completion" for all work described in the Contract Documents:
 - 1. pH Adjustment Chemicals: Provide suitable pH adjustment chemicals in 50 gallon drums to control pH at the 7.8-8.8 level.
 - 2. Corrosion Inhibitor: Provide non-polluting corrosion inhibitor
 - 3. Dispersant: Provide non-polluting dispersant
 - 4. Biocide: Provide both oxidizing and non-oxidizing biocide. Provide non-polluting biocide
 - 5. Recommend pH adjustment chemical, corrosion inhibitor, dispersant, and biocide for the local water characteristics.

3.6 TECHNICAL SERVICE AND CONTROL

- A. Insulate water treatment piping and tanks containing chilled water, hot water and steam in accordance with insulation material as specified for the respective system.
- B. Wherever possible, all water treatment equipment is to be located in mechanical equipment room.
- C. For a period of one year after startup of system, be on call at no additional cost to the City of New York to make on-site inspections of equipment during scheduled or emergency outages in order to properly evaluate their effect on the water treatment program.
- D. During the First 3 Months provide monthly on-site testing, adjusting, recommendations, and reports during system operation. Including testing for iron, copper, phosphate, inhibitor, pH, conductivity, and bacteria in all system.



- E. Provide monthly servicing of pumps and control equipment.
- F. Corrosion coupon removal and replacement, every 60 days for Copper and Steel.
- G. Bacterial Analysis - Monthly on open systems. (Dipslide analysis).
- H. Provide instruction within 1 year of substantial completion to include:
 - 1. Safety and Chemical Handling.
 - 2. Testing and Adjusting Procedures.
 - 3. Basic Water Treatment.
 - 4. Water Treatment for Management.
- I. Provide monthly written chemical and testing inventory.
- J. Provide monthly testing equipment calibration.
- K. Water meter readings are to be logged in manuals from both controller and meters.
- L. Copies of all correspondence, testing, coupon studies, etc., will be left on site in a manual used only for water treatment and sectioned accordingly.
- M. The program should provide the following results:

	Open Recirculation	Closed Recirculation
1. Mild Steel Piping	2.0 mpy No pitting	0.2 mpy No pitting
2. Copper Piping	0.1 mpy No pitting	0.05 mpy No pitting
- N. Provide complete operation manual including the following sections:
 - 1. Field Reports
 - 2. Logsheets
 - 3. Analytical
 - 4. Testing/Training
 - 5. Correspondence
- O. Provide Material Safety Data Sheets posted at each drum.

3.7 GLYCOL SOLUTIONS

- A. Clean new lightly corroded existing systems with a 1% to 2% solution of trisodium phosphate in water prior to the installation of industrially inhibited glycol fluid.



- B. Clean extensively corroded systems using the services of an industrial cleaning company. Make all necessary replacements and repairs.
- C. Use only good quality water in solution with the glycol fluid. Use water with low levels (fewer than 25 ppm each) of chloride and sulfate; and fewer than 50 ppm each of hard water ions (CA⁺⁺, Mg⁺⁺) with total hardness not to exceed 100 ppm. Distilled or deionized water is recommended. If good quality water is unavailable, purchase pre-diluted solutions of industrially inhibited glycol fluid from the fluid manufacturer.

END OF SECTION 23 25 00



**Department of
Design and
Construction**

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**SECTION 23 26 00
WATER SPECIALTIES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 DESCRIPTION

- A. Provide water specialties in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Air Vents.
- B. Air Separators.
- C. Relief Valves.
- D. Strainers.
- E. Suction Diffuser.
- F. Expansion Tanks.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings: Submit shop drawings prior to manufacture. Do not proceed with fabrication of equipment until fully approved shop drawings have been returned.
- C. Product Data: Submit manufacturer's latest published data indicating rating data, catalog cuts, model numbers, dimensional information, and pressure drops.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Comply with the applicable requirements of ASME, ANSI, U.L., ASTM and National Electric Code.



PART 2 - PRODUCTS

2.1 AIR VENTS

- A. Provide air vents with 3/4" IPS inlet connection and 3/8" outlet, suitable for the system and for the system working pressure and temperature. Design vents to eliminate air from the system automatically without permitting the passage of water. Construct vents of brass body, copper float and stainless steel valve parts.
- B. Manufacturers
 - 1. Bell & Gossett
 - 2. Sarco
 - 3. Hoffman
 - 4. Amtrol
 - 5. Armstrong
 - 6. Or approved equal.

2.2 AIR SEPARATORS

- A. In-Line Air Separator
 - 1. Furnish and install a horizontal in-line air separator designed to effectively separate free air in water systems. Construct the air separator of heavy duty cast iron designed to function satisfactorily at working pressures up to 175 PSI and liquid temperatures up to 300°F. Provide an integral weir designed to decelerate system flow to maximize air separation.
- B. Centrifugal Air Separator
 - 1. Furnish and install a centrifugal type air separator. Provide with inlet and outlet connections tangential to the vessel shell. Vessel shell diameter to be three times the nominal inlet/outlet pipe diameter.
 - 2. Provide an internal stainless steel air collector tube with 5/32" diameter perforations and 63% open area designed to direct accumulated air to an external air vent via an NPT connection at top of unit.
 - 3. Construct the unit with a removable galvanized steel system strainer with 3/16" diameter perforations and a free area of not less than five times the cross-sectional area of the connecting pipe. Provide a blow down connection to facilitate routine cleaning of the strainer.
 - 4. Manufacturer to furnish data sheet specifying air collection efficiency and pressure drop at rated flow.
 - 5. Provide a Manufacturer's Data Report for Pressure Vessels, Form U-1 as required by the provisions of the ASME Boiler and Pressure Vessel Code for each air separator.



- C. Manufacturers
 - 1. Bell & Gossett
 - 2. Amtrol
 - 3. Armstrong
 - 4. Or approved equal.

2.3 RELIEF VALVES

- A. Provide diaphragm operated safety relief valve, ASME labeled, for relieving pressure. Refer to Drawings for pressure rating of valve and relief setting. Discharge water to be through NPT connection.
- B. Provide valve with a low blow-down differential constructed of bronze or iron body. The valve seat and all moving parts exposed to fluid will be of non-ferrous material.
- C. Manufacturers
 - 1. Bell & Gossett
 - 2. Amtrol
 - 3. Armstrong
 - 4. McDonnell & Miller
 - 5. Kunkle
 - 6. Or approved equal.

2.4 STRAINERS

- A. Provide "Y" pattern iron body water strainers for the pressure ratings as described herein. Strainers to be self-cleaning with screen free area a minimum of three times the inlet pipe area. Provide strainer basket cleanout cap with tapping to permit connecting of blow-down valve.
- B. The following model numbers (Basis of Design – See below for manufacturers) are provided to establish a minimum standard:
 - 1. 150 psig up to 2" - "Y" pattern, Type IT with 20 mesh stainless steel screen with screw ends.
 - 2. 150 psig 2½" to 12" - "Y" pattern, Type IF-125 with .125" perforations, stainless steel screen, flanged ends.



C. Manufacturers

1. Sarco
2. Hoffman
3. Crane
4. Zurn
5. Mueller
6. Armstrong
7. Or approved equal.

2.5 SUCTION DIFFUSER

A. Provide suction diffusers to consist of angle type body with straightening vanes and combination diffuser-strainer-orifice cylinder with 3/16" diameter openings. Provide a permanent magnet located within the flow stream and removable for cleaning. Equip the orifice cylinder with a start-up disposable fine mesh strainer. Orifice cylinder to withstand pressure differential equal to pump shutoff head and a free area equal to five times cross section area of pump suction opening. Straightening vanes shall extend the full length of the orifice cylinder and be replaceable. Provide unit with adjustable support foot to carry weight of suction piping.

B. Manufacturers

1. Bell & Gossett
2. Armstrong
3. Keckley
4. Or approved equal.

2.6 EXPANSION TANKS

A. Furnish and install a diaphragm type hydro-pneumatic expansion tank especially designed for use on the services specified. Construct the compression tank of welded steel and equip with a butyl flexible diaphragm to maintain a separation between the system water and the air cushion. Provide with bottom inlet connection for all water systems. Each tank shall bear an appropriate ASME label for the following minimum working pressures and temperatures:

1. Building Chilled Water: 125 psig - 100°F.

B. The minimum total tank volume and acceptable volume to be as specified on the Drawings. Provide a factory initial charge of 15 psig.



- C. Provide suitable structural support as required for each tank as indicated on the Drawings.
- D. Provide for each tank, lifting lugs, base ring, drains, N2 charging connections, piping connections, and specialties as required and indicated on the Drawings. Provide one (1) bottle of N2 and manifold to be used to charge all tanks. Each tank shall have an ASME relief valve set at the appropriate pressure.
- E. Provide a U.L. listed pressure switch operated by a brass bourdon tube activating a mercury switch. This switch to activate a low pressure alarm as indicated in the Controls Specification.
- F. Paint the outside of the tank with a shop coat of approved rust inhibiting primer after fabrication.
- G. Manufacturers
 - 1. Bell & Gossett
 - 2. Amtrol
 - 3. Taco
 - 4. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Provide automatic air vents at high points of all piping and as required for removal of air from the system using 3/4" steel pipe suitable for the pressure service between the main pipe and inlet. Provide 3/8" OD hard drawn Type L copper tubing from vent outlet for overflow in case of defective action. Copper tubing shall run into a suitable drain. When vents are located above hung ceilings, connect all vent drains to a common drain main and pipe to nearest slop sink or floor drain. Provide 3/4" stop valve in the inlet line for servicing of automatic air vent. Manual vents may be substituted for automatic vents, at system high points, only as directed by the Commissioner.
- C. Provide at each heat transfer element supplied with water, not less than one 1/2" manual air vent. Furnish ten (10) keys.
- D. Provide manual air vent valves in the piping connections to each hot water heating coil and each chilled water coil (both supply and return where such are not automatically vented). Provide a 1/4" vent line from each air vent to nearest floor drain, or as directed, to suit job conditions. At Commissioner's discretion, provide soft temper copper tube pigtail on manual vents, in lieu of 1/4" vent line, so that vent can be discharged into a bucket.
- E. Install relief valves in upright position with discharge piped to nearest floor drain.



3.2 STRAINER INSTALLATION

- A. On open systems, install strainers immediately upstream of each automatic control valve with the same size as the inlet pipe indicated on the drawings, not reduced size serving the control valve.
- B. Provide approved valved dirt blowout extensions on each strainer. Locate each blowout valve at hand-height.
- C. Clean the strainers as necessary until accepted by Commissioner.
- D. Provide temporary strainer in the suction line of each pump during construction, testing and balancing. Replace with permanent strainers after acceptance by the Commissioner.
- E. Minimum strainer body at pump inlet connections: 3 inch.
- F. Prior to installation, disassemble strainer, coat with non-seizing type lubricant and reassemble.
- G. Install strainers with ample space for basket removal. Where shown on the Drawings, provide quick opening 1" blow-off valve with hose bibb end.
- H. Install suction diffusers on pump inlets with ample space for basket removal. Where pumps are mounted on inertia pads, suction diffuser will be supported with steel pipe section on inertia pad. All other installations, the suction diffuser will be supported by steel pipe section and a neoprene pad 1" thick. Remove start-up strainer after start-up and pipe cleaning has been accepted by the Commissioner.

END OF SECTION 23 26 00

SECTION 23 27 00
WATER FILTERS AND CLEANERS

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

- A. Provide water cleaning devices in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Automatic Self Cleaning Water Filters.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit shop drawings and product data as follows:
1. Submit shop drawings indicating system schematics, equipment locations, and component locations.
 2. Submit manufacturer's installation instructions.
 3. For sand filter, submit Particle Analysis results from at least three previous users where the criteria described in 1.02 A, B and C was met. Include tower tonnage, condenser water circulation rate, designated delta "T", and filtration rate. Note % of condenser water circulation rate that is being filtered in each case.
- C. Submit drawings showing arrangement of multiple filter units.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Automatic Self-Cleaning Water Filter.
1. Filter shall be designed to provide 0.5 micron filtration by utilizing ultrafine sand with an effective size of less than 0.15 millimeters.
 2. Filter design flow rate shall be greater than 15 gpm per square foot of surface area.



3. Filter shall be sized to remove 50% or more of the 0.5 micron particles and 80% or more of the 2 microns particles and larger typically found in the circulating cooling water, within 30 days of startup.
 4. Media shall be certified as to quality according to NSF standards.
 5. Filter system shall be rated for 150 psig inlet pressure to filter pump.
 6. Tanks shall be #304 Stainless Steel rated for 150 psig operating pressure, pressures.
 7. Manifold shall be 80 Steel Flanged.
 8. Lower distributor will be of "V Notch" design which dislodges sand particles during backwash. Drilled hole design is not acceptable.
- C. Centrifugal Separator.
1. Unit to be rated for maximum system operating pressure.

PART 2 - PRODUCTS

2.1 AUTOMATIC SELF-CLEANING WATER FILTER

A. General Construction Requirements

1. Filter shall be comprised of #304 Stainless Steel tank(s) with a Schedule 80 steel manifold and circulating pump.

B. Components

1. Media shall be natural Quartz multimedia that is certified as to qualify by NSF standards. Crushed or ground media is not acceptable.
2. Manifold valves shall be electric actuated ball valves with steel bodies and stainless steel stem and ball.
3. Filter shall be equipped with two pressure gauges. The gauges shall have a stainless steel casing, with brass internals and be liquid filled. The minimum face size shall be no less than 2-1/2". One gauge marked (IN) shall be connected to the filter discharge and the second gauge marked (OUT) shall be connected to the outlet side of the filter. Both gauges shall be mounted to a support panel that shall be mounted above the filter control.
4. Filter Controls shall have a NEMA 4X enclosure and shall contain the following:
 - a. A 24-hour timer to force backwash once per day.
 - b. A pressure differential switch which is factory set to initiate backwash at 18 psi differential across the filter bed.



- c. A manual override switch, of a momentary contact design, mounted on the control box door.
 - d. A program timer shall be designed to control the duration of the backwash cycle. It shall be engaged by either the 24-hour timer, pressure differential switch, or the manual override button. This program timer shall control a valve sequence multiport valve. An internal delay of no less than 90 seconds shall be built into the program timer to avoid false backwashing.
 - e. A valve sequence multiport solenoid valve shall operate the filter's diaphragm actuated valves. It shall be equipped with a position indicator and two control switches. One switch shall be used electrically to override the multiport valve, in the event that it is not in sequence with the program timer, and shall automatically reset the multiport valve to filtration position.
 - f. A backwash indicating light mounted on the outside of the panel door.
 - g. A non-resettable backwash counter mounted on the outside of the panel door to indicate the number of times the filter has backwashed.
 - h. A motor starter and disconnect.
 - i. A step-down transformer to convert 3 phase power to 115 volts AC to operate control components.
 - j. A set of dry contacts which can be connected to BMCS to monitor backwash frequency.
5. Provide receiver tank to accommodate full backflush capacity with appropriately size outlet piped to nearest floor drain.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions
- B. Mount assemblies on 4" housekeeping pad.
- C. Inspect all openings for foreign objects prior to installation.
- D. Centrifugal separators to be located on discharge side of pumping system.
- E. Provide pressure gauge at the inlet and outlet of unit(s).

3.2 SAND FILTER

- A. Installation
 - 1. Place vessels and tanks as shown in installation drawing and level. Use manifold as guide for spacing.



2. Install upper and lower manifolds as per manufacturer's instruction.
3. Install piping between manifold and pumps.
4. Install piping between filler system and main system, from backwash outlet to receiver tank and from tank to floor drain.
5. Anchor control panel to floor or wall mount.
6. Connect control tubing or wiring as appropriate to valves and manifold according to manufacturer's instructions.
7. Connect electrical power to control panel and control to pumps according to wiring diagram supplied by manufacturer.
8. Install media according to manufacturer's instructions.
9. Install piping from domestic water system to backwash inlet.

B. Start-Up and Testing

1. Startup by factory authorized agent shall be provided.
2. Submit cooling water particle analysis reports showing frequency and volume of particles within the following micron size ranges: 0.5 to 1, 1 to 5, 5 to 10, 10 to 15, 15 to 20, and 20 and larger at time of startup.
3. Submit cooling water particle analysis reports showing frequency and volume of particles within the following micron size ranges: 0.5 to 1, 1 to 5, 5 to 10, 10 to 15, 15 to 20, and 20 and larger 30 days after startup.
4. Submit report analyzing above results confirming that system meets performance specifications listed above.

C. Manufacturers

1. Sonitec AWT1
2. PEP
3. Baltimore Air Coil
4. Or Approved equal

END OF SECTION 23 27 00



**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 DESCRIPTION

- A. Provide dampers in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Combination Fire/Smoke Dampers
- B. Volume Dampers.
- C. Splitter Dampers.
- D. Backdraft Dampers.
- E. Automatic Damper Installation.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit complete manufacturers data on all dampers required by this section, including sizes, location, quantity, and construction details.
- C. Submit samples of dampers as requested by the Commissioner.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Fabrication testing and installation to be in compliance with U.L., and NFPA. Fire dampers to be U.L. labeled for 1½ or 3 hour rating as indicated on the Drawings. Refer to architectural drawings for fire ratings of slabs and partitions being penetrated.
- C. Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Details and details as shown on the Drawings.



- D. For positive smoke control, dampers shall conform to U.L. Standard 555S.

1.6 WARRANTY

- A. Manufacturer shall provide one (1) year warranty.

PART 2 - PRODUCTS

2.1 COMBINATION FIRE/SMOKE DAMPERS

- A. Provide combination fire/smoke dampers as shown on the Drawings in ducts piercing fire rated walls and floors, and where shown on the Drawings.
- B. Provide normally closed dampers that are fusible link electrically operated. Provide factory-mounted U.L. approved actuators, relays and damper position switches.
- C. Dampers to be of opposed multi-blade construction and classified in accordance with U.L. Standard 555 and 555S in all respects including size limitations. Use Class 1 dampers, with maximum leakage of 4 cfm/sq.ft., in ducts with velocities at or over 2000 FPM, and Class 2 dampers, with maximum leakage of 10 cfm/sq.ft., in ducts with velocities under 2000 FPM, unless noted otherwise on the Drawings. Minimum size Class 1 damper, 12 x 12. Minimum size Class 2 damper, 9 x 9.
- D. Damper construction to be minimum 16 gauge galvanized steel frame and blades. Side seal to be Type 304 flexible stainless steel with bronze or stainless steel shaft bearings in end plate. Damper linkage to be outside air stream.
- E. Provide dampers designated as "FSD" with an electrically resettable link which will close and lock damper on increased air temperature over 165°F. The link to be manually resettable at the damper linkage without need of link replacement. Provide damper position indicator external of damper.
- F. Provide means to automatically open dampers remotely from the fire command center, or as described in the controls specification.
- G. Provide dampers with position indicator switches to provide remote status of open or closed positions.
- H. Provide dampers with accompanying smoke detector, provided and installed by division 26. Contractor shall make appropriate preparation and installation for all installations.
- I. Manufacturers
 - 1. Ruskin - Model FSD60 (Class 1)
 - 2. Imperial



3. Nailor-Hart
4. Arlan
5. Or approved equal

2.2 VOLUME DAMPERS

- A. Provide volume dampers as shown on the Drawings and as required for proper balancing and distribution of air, in the various branches of the ductwork for use in balancing the system. Dampers to be installed separately and independently of the registers hereinafter specified to be set behind supply, return, and exhaust air grilles. Provide multi-blade dampers in ducts above 24 inches in width or 16 inches in height. Coordinate with the air balancing subtrade specialist and provide all additional dampers required for proper air balance.
- B. Provide volume dampers of the quadrant type, of heavy construction, pivoted to turn easily and provided with approved operating and locking devices mounted on outside of the duct in an accessible place.
- C. For all volume dampers located above inaccessible ceilings, provide remote cable operators. Anemostat type OB-ASL complete with fastening device and hex key operator.

2.3 SPLITTER DAMPERS

- A. Provide SMACNA Standard splitter dampers for ductwork smaller than 28 inches in width.

2.4 BACKDRAFT DAMPERS

- A. Provide balanced, tight closure, 1/8-inch thick aluminum backdraft dampers of the self-operating type where indicated on the Drawings. Fabricate damper frames from extruded aluminum with mitered corners. Blades to be extruded aluminum with extruded vinyl edge seals. Blade/frame assembly to be weather resistant with blades overlapping the frame. Damper bearings to be bronze, nylon or cyclohex. Provide bird screen over opening.
- B. Manufacturers
 1. Ruskin
 2. Prefco
 3. Grainger
 4. Or approved equal.

2.5 AUTOMATIC DAMPER

- A. Install all automatic dampers being supplied by the BMS subcontractor.



PART 3 - EXECUTION

3.1 FIRE/SMOKE DAMPERS

- A. Refer to DDC General Conditions.
- B. Provide conveniently located access doors, of ample size for resetting the dampers. Duct mounted grilles, registers or diffusers can be used for access as long as such access is readily available as determined by the Commissioner.
- C. Galvanize or paint with one coat of rust inhibiting paint the entire fire damper assembly before installation.
- D. In the open position with damper shutter stored, provide 95 percent free area.
- E. All actuators of combination fire/smoke dampers (FSD) are connected by the subcontractor to the controlling device. The division 26 subcontractor will provide all wiring, conduit pneumatic tubing, circuit protective devices, etc., as necessary to meet this requirement.
- F. Fire/smoke dampers will be installed in ducts and penetrations of rated walls and floors which are part of a smoke control and/or evacuation system. These dampers may be controlled during normal operation by the BMS system; however, during a smoke or fire emergency, these dampers will be openable from the Fire Command Center.
- G. Dampers incorporating multiple sections must have actuators that are readily accessible. Coordinate locations so as not to be necessary to remove damper sections, structural, or other fixtures, to facilitate removal of damper motors. Provide access doors where necessary to meet this requirement. In particular, ensure that where in-air stream actuators are provided, they are readily accessible.
- H. Do not install Class 1 fire/smoke or smoke dampers in ducts with any dimension smaller than 12". Expand duct to 12" prior to installation. For Class 2 dampers, the minimum dimension is 9".

3.2 ALL DAMPERS

- A. Mount dampers plumb and level. Provide additional duct bracing and supports to properly support dampers.
- B. Provide duct access doors for internal access to all fire dampers, combination fire/smoke dampers, smoke dampers, automatic dampers, and backdraft dampers.
- C. Damper construction to be similar to that of the ductwork to which it connects (i.e., galvanized to galvanized, stainless steel to stainless steel).
- D. Provide on all dampers, extractors, etc. mounted on externally insulated ductwork, 16 gauge elevated platform at least 1/8" higher than the thickness of the insulation. Provide damper shaft bearing mounted on ductwork within elevated platform

END OF SECTION 23 33 13



**SECTION 23 36 10
AIR OUTLETS AND INLETS**

PART 1 - GENERAL

1.1 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 WORK INCLUDED

- A. Air Outlets.
- B. Air Inlets.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit manufacturer's data indicating air distribution, outlet velocities, and acoustic performance.
- C. Submit manufacturer's specifications of construction including materials, installation instruction and adjustment data. Include "K" factors for balancing.
- D. Submit product accessories.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Air outlets and inlets to be tested in accordance with ADC (Air Diffusion Council).

PART 2 - PRODUCTS

2.1 GENERAL

- A. Size the air distribution outlets as shown on the drawings to accommodate the air volume and throw indicated so as to maintain a maximum terminal velocity of 50 feet per minute in the occupied area. The overall noise level produced by all of the supply air outlets and return air inlets in various rooms are not to exceed specified limits. Outlets shall distribute in such a manner that the space temperature will not vary more than 2°F over the entire conditioned area. The conditioned area is defined as the area 2'-0" above the floor to 7'-0" above the floor, inclusive. If the Contractor cannot comply with the above requirements by following the arrangement shown on the Drawings, he is to notify the Commissioner, in writing, setting forth requested modifications.



- B. At the discretion of the Commissioner, air outlets may be smoke tested to determine their compliance with these Specifications. See the Section entitled "Testing, Balancing and Adjusting" for testing requirements. At no cost to the City of New York make any revisions required for compliance with terminal velocity requirements, noise level requirements.
- C. Refer to Architectural Drawings and Specifications for ceiling type and construction. Provide proper frames and borders to fit the ceiling specified.

2.2 OUTLET TYPES

- A. Type CD-A - Square Ceiling Diffuser Perforated Face
 - 1. Perforated face star pattern supply diffuser, steel construction with removable/stationary deflectors. Deflectors to provide horizontal air pattern towards the corners of the diffuser. Sizes indicated on the Equipment Schedule are neck sizes. Face area is approximately 24" x 24". Air pattern is as indicated on the Drawings. Baked enamel finish and black inner finish.
- B. Type CD-B - Square Diffuser
 - 1. Same as CD-A, except face area is approximately 12" x 12".
- C. Type CD-C - Square Ceiling Diffuser Louver Face Fixed Pattern
 - 1. Louver face supply diffuser, all steel construction. Sizes indicated on Equipment Schedule are neck sizes. Baked enamel finish. Face area is approximately 24" x 24".
- D. Type CD-D - Square Ceiling Diffuser Louver Face Fixed Pattern
 - 1. Same as CD-C except face area is approximately 12" x 12".
- E. Type CD-E - Round Ceiling Diffuser
 - 1. Round face diffuser with fixed cone positions, all steel construction. Sizes indicated on Equipment Schedule are neck sizes. Baked enamel finish.
- F. Type SR-A - Exposed Duct Supply Register
 - 1. Steel register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and steel opposed blade volume control damper. Baked enamel finish. Install register on a reverse knuckle joint in accordance with SMACNA Manual.
- G. Type SR-B - Sidewall Supply Register
 - 1. All aluminum register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and aluminum opposed blade volume control damper. Baked enamel finish.



H. SR-C-Sidewall Stair Pressurization Register

1. Extruded aluminum register with horizontal fixed blades (no vertical adjustable rear blades), aluminum opposed blade volume control damper, gasketed frame with concealed screw fastening. Baked enamel finish.

2.3 INLET TYPES

A. Type ER-A - Louvered Register

1. For sidewall or ceiling return or exhaust. All aluminum construction with one set of horizontal fixed blades, set at 45° fixed deflection, 3/4" spacing. Provide a steel opposed blade damper. Baked enamel finish.

B. Type ER-B - Sidewall Perforated Register

1. All aluminum construction with a steel opposed blade damper. Holes to be 3/16" diameter staggered. Baked enamel finish.

C. Type ER-C - Ceiling Perforated Register

1. All steel construction. Face area as shown on Drawings. Provide steel opposed blade damper.

D. Type EG-A - Louvered Return Grille

1. Same as ER-A except damper is deleted. For ceiling and sidewall applications.

E. Type EG-B - Sidewall Perforated Return Grille

1. Same as ER-B except damper is deleted. For sidewall applications.

F. Type EG-C - Ceiling Perforated Grille

1. Same as ER-C except damper is deleted. For ceiling applications.

G. Type EG-D - Door Mounted Transfer Grille

1. All steel construction. Blades to be inverted "V" shaped, 20 gauge steel, to provide sight proof design and stiffness.

H. Type EG-E - Filter Return Grille

1. Eggcrate design with 1/2" x 1/2" x 1/2" aluminum grid. Removable core to be hinged with concealed screws. Provide 1" fiberglass filter cut to size. Baked enamel finish.



2.4 MANUFACTURERS

- A. Titus
- B. Price
- C. Anemostat
- D. Krueger
- E. Tuttle & Bailey
- F. Or approved equal

PART 3 - EXECUTION

3.1 NOT USED.

END OF SECTION 23 36 10



**SECTION 23 52 10
PIPING AND ACCESSORIES**

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

- A. Provide piping and accessories in accordance with the Contract Documents.

1.3 SUMMARY

- A. Pipe.
- B. Fittings.
- C. Unions and Couplings.
- D. Escutcheons.
- E. Sleeves.
- F. Welding Procedures.

1.4 PERFORMANCE REQUIREMENTS

- A. Piping and piping auxiliary components shall meet or exceed the performance requirements specified in this specification section.

1.5 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit AutoCAD computer generated shop drawings indicating anchoring details, anchor points, guide details, etc.
- C. Submit AutoCAD computer generated drawings of location and size of sleeves for openings in floors and walls
- D. Submit AutoCAD, computer generated detailed piping layouts at 3/8" = 1'-0" scale for approval. Piping layouts shall be submitted for each individual construction phase, and for the entire completed project.
- E. Submit manufacturer's data for hangers and fittings.



- F. Submit dimensioned drawings to the Commissioner for approval showing pipe penetrations through core walls, slabs and other structural elements, anchor and guide locations, etc.
- G. Submit a schedule for pipe fittings.
- H. Submit a schedule for pipe sleeves.
- I. Submit a set of welding procedures for each pipe service.
- J. Submit a list of pipe welders proposed for all shop and field welding.
- K. Submit mill certificates for piping and fittings.
- L. Submit an overall piping schematic drawing (similar to a riser or isometric diagram) showing entire installed system.
- M. Submit plan drawings showing piping point loads to structure and supplementary steel layouts for all systems.
- N. Submit a line-by-line statement of compliance or non-compliance with this specification section.

1.6 DESCRIPTION

- A. Provide piping and accessories in accordance with the Contract Documents.

1.7 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. All piping work to conform to the latest edition of the appropriate ANSI Code for Pressure Piping and Power Piping, including latest amendments.
- C. Employ only skilled welders, each holding a currently active certificate, dated within 12 months, from a recognized testing laboratory, indicating satisfactory welding test results per the American Welding Association or ASME Boiler and Unfired Pressure Vessel Code, Section IX, Welding Qualifications. Retest is required if welder has not performed welding for a period of 90 days. Maintain copies of certificates at the job site.
- D. The piping shown on the Drawings is indicated schematically to show the general distribution and system configuration. Coordinate with the work of other Sections and Divisions of the Specifications so as to provide a complete system, including approved rerouting, horizontal and vertical offsets, etc., to make the piping distribution fit within the confines of shafts, ceiling spaces, chases, equipment rooms, etc., all to the satisfaction of, or as directed by, the Commissioner.
- E. For high pressure steam piping, test steel pipe in accordance with the latest edition of the ASME standard for welded steel pipe under B31.1.
- F. Perform radiographic testing on high pressure steam piping (151 psi to 300 psi) according to the ASME Power Piping Standards.



- G. All piping shall be sourced from the United States (domestic supply).

PART 2 - PRODUCTS

2.1 PIPING

- A. Piping, fittings and accessories to be suitable for the pressure and temperatures of the service. Ascertain system working pressure and provide piping accordingly, based on the systems to be tested at 150 percent of maximum system working pressure.
- B. Galvanizing: Hot process inside and outside of pipe with zinc coating, minimum 3 oz. per sq. ft.
- C. For butt-welded piping, bevel ends as specified under "Welding of Piping". For screwed joint connections, ream cut ends of pipe to full diameter. Socket welded piping shall only be permitted for 1-1/2 inches and smaller. Ends shall be without burrs or other inward projections at the cut ends.
- D. All steel pipe is ERW or seamless type ASTM A-53, Grade B, unless noted otherwise. Dimensions and weights of steel pipe to conform to ANSI Standard B16.10.
- E. High pressure steam piping installation shall conform to the latest edition of ANSI B31.1 Code for Pressure and Power Piping, including latest amendment. All other piping shall conform to the latest edition of ANSI B31.9 Code for pressure and power piping, including latest amendments.
- F. For welded pipe, fittings shall be welding fittings and all pipe flanges shall be welding neck type.
- G. Copper pipe to be hard drawn conforming to ASTM B-88.
- H. Refrigerant tubing shall be cleaned and dehydrated at the factory and shipped sealed with a holding charge of nitrogen.

2.2 PIPE FITTINGS

- A. Comply with latest edition of ANSI B16.3, B16.5, B16.9 and B16.11 standards.
- B. Provide steel elbows of long radius pattern.
- C. Fittings to be of the same schedule (weight) as the pipe to which it will be welded. Submit cut samples for approval if directed. Provide fittings which maintain full wall thickness throughout, ample radius and fillets, and proper bevels or shoulders at ends.
- D. Provide carbon steel welding flanges at all flanged valves and equipment, and as required for union connections. Flanges to be either slip-on type, bored to match diameter of pipe and front and back welded thereto, or welding neck pattern. Use flanges with a working pressure equal to 150 psi, or a minimum of 150 percent of the maximum system working pressure. Flanges for high pressure steam service to be 300 psi rating. High pressure steam service as relates to piping, fittings, valves and accessories is defined under these Contract Documents as steam at an operating pressure of 15 psig or higher.



- E. Provide cadmium plated or galvanized machine bolts with heavy pattern semi-finished hexagonal steel nuts to join flanges. Use studs threaded both ends where necessary to facilitate removal of valves or disassemble flanged fittings. All bolts used shall be "B-7" bolts plus studs plus threaded rods, using "2H" nuts.
- F. Provide 1/16 inch thick, non-asbestos gaskets between flanges made of compressed sheet on cold water piping only. Steam piping shall utilize "flexitalic" gaskets only.
- G. Use Teflon tape on male threads of screwed pipe (female).
- H. Screwed fittings to be inside threaded with threads cut clean and true.
- I. Copper fittings to be brazed fittings conforming to ASTM B16.5, B16.18 and B16.22.
- J. Branch piping connections for all steam service piping, feed water piping and condensate piping shall utilize tee fittings, reduced elbows, or shaped nipples only. No premade or purchased welded outlets, wet tap or stab in type connections are permitted
- K. Branch piping connections for other water service piping (chilled water, condenser water, hot water) shall utilize fittings, welded outlets, wet tap, or shaped nipples only. No "Stab-in" connections are permitted.
- L. Provide reducing/increasing long radius elbows at pump inlet and outlet connections.

2.3 UNIONS AND COUPLINGS

- A. Provide unions where required for the removal of equipment. For piping 3" and smaller, use ground joint type of malleable iron with brass seats for iron pipe, and made of brass for brass pipe and copper tubing. For piping 4" and larger use 150 psi forged steel slip-on flanges for ferrous piping and bronze flanges for copper piping.
- B. Insulating Coupling Type: At each joint between steel or zinc (galvanized) and copper; up to 2" size, Capitold Series CS/FG, Epco "Dielectric Union", Bonney Forge Union or approved equal.

2.4 CHILLED WATER SYSTEM PIPING & FITTING SCHEDULE

- A. Piping:
 - 1. 12" and larger will be standard weight A 53 Gr ERW, Black Steel.
 - 2. 10" and smaller will be sch 40 A 53 Gr B ERW Pipe, Black Steel.
 - 3. 2 1/2" and smaller shall be type "L" copper.
- B. Fittings:
 - 1. 3" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234.
 - 2. 2 1/2" and smaller will be screwed Brazed ANSI B16.22 wrought copper.



C. Flanges:

1. 3" and larger will be 150# Weld Neck Flanges. ANSI B 16.5 ASTM 105.
2. 2 1/2" and smaller will be brazed socket weld 150# copper flanges.

D. Joints:

1. 3" and larger will be welded.
2. 2 1/2" and smaller will be brazed or soldered.

E. Branch Connections:

1. Where applicable branch connections to steel pipe will be made with tees, welded outlets, wet tap, shaped nipples or 1/2 couplings.

F. Bolts and Nuts:

1. ASTM A307 Grade "B7" bolts and grade 2H nuts.

G. Gaskets:

1. Garlock 3000, Flecitallix, US Pipe or approved equal

2.5 CONDENSER WATER SYSTEM PIPING AND FITTING SCHEDULE

A. Piping:

1. 12" and larger will be standard weight A 53 Gr B ERW pipe, black steel.
2. 10" and smaller will be sch 40 A 53 Gr B ERW pipe, black steel.

B. Fittings:

1. 2 1/2" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234.
2. 2" and smaller will be screwed steel fittings 2000#.

C. Flanges:

1. 2 1/2" and larger will be 150# weld neck flanges.

D. Joints:

1. 2 1/2" and larger will be welded.
2. 2" and smaller will be screwed.



- E. Branch Connections:
 - 1. Where applicable branch connections to steel pipe will be made with tees, welded outlets, wet tap, shaped nipples or ½ couplings.
- F. Bolts and Nuts:
 - 1. ASTM A307 Grade "B7" bolts with Grade "2H" nuts
 - 2. Exterior bolts, nuts and accessories at the cooling tower and filter room will be hot dip galvanized or cadmium plated.
- G. Gaskets:
 - 1. Garlock 3000, Flecitallix, US Pipe or equal

2.6 DOMESTIC WATER PIPING AND FITTING SCHEDULE

- A. Piping:
 - 1. 8" and above pipe A53B Seamless Standard Weight Galvanized with roll groove ends.
 - 2. 2 ½" to 6" L Cooper Tubing Hard Drawn Roll Groved
 - 3. 2" and Down L Cooper Tubing Hard Drawn or Soft Annealed
- B. Fittings:
 - 1. 2 ½" and above grooved type fittings, couplings zero flex type.
 - 2. 2" and down ANSI B16.22 Wrought Copper
- C. Flanges:
 - 1. Grooved type Adapter Flanges.
- D. Joints:
 - 1. 2 ½" and above grooved type mechanical couplings zero flex
 - 2. 2" and down soldered with 95/5 SN/SB
 - 3. Material transition joints will be made using Flanged Isolation Kits or Dielectric Unions.
- E. Branch Connections:
 - 1. Will be made with Tee Fittings or grooved type outlet couplings or Fig. 920, 921 bolted branch outlets.



F. Bolts and Nuts:

1. ASTM A307 Grade B7 Bolts, Grade 2H Nuts

G. Gaskets:

1. Garlock 3000, Flecitallix, US Pipe or approved equal
2. Isolation Gasket sets where applicable.

2.7 SOFT WATER PIPING AND CHEMICAL FEED PIPING

A. Piping:

1. All sizes Schedule 40 Stainless Steel.

B. Fittings:

1. All sizes to utilize butt weld or socket weld fittings.

C. Flanges:

1. 150# Weld Neck to ANSI 816.5.

D. Joints:

1. All sizes to utilize butt weld or socket weld joints.

E. Branch Connections:

1. Will be made with Tee Fittings outlet

F. Bolts and Nuts:

1. ASTM A307 Grade B7 Bolts, Grade 2H Nuts

G. Gaskets:

1. Garlock 3000, Flecitallix, US Pipe or approved equal

2.8 VENTS AND EQUIPMENT DRAINS PIPING AND FITTING SCHEDULE

A. Piping:

1. 12" and larger will be Standard Weight A53B ERW Black Steel Pipe.
2. 10" and smaller will be Schedule 40 A53B ERW Black Steel Pipe.



3. 2" and smaller can be L Copper Tubing Hard Drawn, Soft Annealed or A53B ERW Schedule 40 T&C Black Steel Pipe.

B. Fittings:

1. 2 ½" and larger will be Weld Fittings the same schedule as the pipe to which it will be welded. ANSI B 16.9 ASTM A234.
2. 2" and smaller will be Threaded Black Cast Iron Fittings 125# or ANSI B16.29 Wrought Copper Fittings (Contractors Option to install larger sizes.)

C. Flanges:

1. 2 ½" and larger will be 150# Weld Neck or Slip On Flanges ANSI B16.5, ASTM 105
2. 2" and Down will be 125# C1 Screwed Flanges.
3. Copper sweat will be 125# Sweat Bronze Companion Flange ASTM B584.

D. Joints:

1. 2 ½" and larger will be welded.
2. Copper systems Soldered with 95/5 SN/SB.
3. Threaded 2" and down.
4. Di-Electric Fittings or Isolation gasket sets will be used between Copper/Steel services.

E. Branch Connections:

1. 2 ½" and larger will use fittings or fabricated laterals.
2. Copper system will be made with Tee Fittings.

F. Bolts and Nuts:

1. ASTM A307 Grade B7 Bolts and Grade 2H Nuts
2. Exterior Cooling Tower will be hot dipped galvanized, all other exterior locations can be plated.

G. Gaskets:

1. Garlock 3000, Flecitallix, US Pipe or approved equal
2. Isolation gasket sets where applicable.



2.9 ESCUTCHEONS

- A. Cast iron or cast brass, deep type, to cover sleeve hubs or fitting projections. Provide escutcheons for exposed piping through floors, ceilings, walls and partitions in finished areas, and piping through all fire rated separations. Attach escutcheon to building material, not to pipe.

2.10 SLEEVES

- A. Construct sleeves for pipes passing through partitions, hung or furred ceilings, etc., of not lighter than 18 gauge galvanized steel.
- B. Provide standard weight galvanized steel pipe sleeves at all penetrations of foundation walls, block walls, reinforced concrete walls, and all floor and roof slab penetrations.
- C. Provide 25 gauge waterproof galvanized sheetmetal counter-flashing at all pipe roof penetrations.

2.11 MANUFACTURERS

- A. Pipe
 - 1. U.S. Steel "National"
 - 2. Ohio Pipe
 - 3. LTV-E
 - 4. Van Lewen
 - 5. Or approved equal.
- B. Welding Fittings
 - 1. Weldbend
 - 2. Tubco
 - 3. Cajon
 - 4. Naylor
 - 5. Ladish
 - 6. Van Lewen
 - 7. Or approved equal.
- C. Copper Pipe and Fittings
 - 1. Mueller Brass



2. Nibco
3. Reading Tube
4. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Refer to DDC General Conditions

B. Preparation

1. Ream and de-burr pipes and tubes.
2. Clean of scale and dirt, inside and outside, before assembly.
3. Remove welding slag or other foreign material from piping.

C. Installation

1. General:

- a. The drawings indicate generally the size and location of piping and while sizes must not be decreased, the Contractor may change locations of pipes in order to accommodate conditions at the job.
- b. Closely plan and coordinate concealed piping and ductwork above suspended ceilings to avoid interferences, and install to maintain suspended ceiling heights shown on architectural drawings.
- c. Install exposed work in a neat, workmanlike manner; parallel to the closest wall with maximum headroom. Avoid light fixtures.
- d. Properly grade piping to secure easy circulation and prevent noise and water hammer. Pitch horizontal pumped water piping 1 inch in 60 feet upward in direction of flow. Pitch steam and condensate piping 1 inch in 40 feet downward in direction of flow. Pitch gravity water piping one foot in 100 feet downward in direction of flow.
- e. Install (at traps, instruments, etc., and wherever else directed) approved unions, to permit easy connection and disconnection.
- f. Make riser branches and other offsets with 4-elbow swings including copper risers and branches.
- g. To meet job conditions offset water supply and return mains up and down. Provide drain cocks with hose connection and chained cap (minimum 3/4 inch) at low points and vent traps at high points.



- h. After systems are in operation, if coils do not circulate quickly and noiselessly (due to trapped or airbound connections), make proper alterations in these defective connections including altering finished construction and refinishing without additional cost.
 - i. Pipe Nipples: Pipe 3 inch in length and less is considered a nipple. Nipples to be of extra heavy construction. Do not use close nipples.
 - j. Do not use short lengths or nipples at locations where a full length of pipe will fit.
 - k. Make piping connections to coils and equipment with offsets provided with screwed or flanged unions so arranged that the equipment can be serviced or removed without dismantling the piping. Do not screw unions directly to coil header piping connections.
 - l. Cut screw threads clean and true. Do not use bushings. Make reductions with eccentric reducers or eccentric fittings to permit draining unless otherwise indicated. Ream out pipe 2 inch and less after cutting to remove burrs.
 - m. Make flanged connections with flange faces true and perpendicular to the center line of the pipe to which the flanges are attached.
 - n. Allow space for pipe insulation.
 - o. Provide dielectric couplings at all junctions of copper and steel or galvanized piping.
 - p. Provide for expansion and contraction of piping systems.
 - q. Use main sized saddle welded or threaded type branch connections for directly connecting branch lines to mains in steel piping if main is at least one pipe size larger than the branch for up to 6 inch mains and if main is at least two pipe sizes larger than branch for 8 inch and larger mains. Do not project branch pipes inside the main pipe. Use of welding tees are permitted for all sizes.
 - r. Cap all openings in pipes during progress of the work.
 - s. Do not connect bottom of pipe risers until riser is complete. Rod or tap to clear loose material before making bottom connection.
 - t. Correct leaks in piping immediately using new materials. Leak-sealing compounds or peening is not permitted.
2. Supports:
- a. Support or suspend piping properly on stands, clamps, hangers, etc., of approved design and make. Supports to permit free expansion and contraction while minimizing vibration. Anchor pipes where shown or required by means of steel clamps, or other approved means, securely fastened to the pipe and the building construction. Follow MSS standards for supports of piping.



- b. Provide structural pipe supports including supplemental steel channels, angles, columns, etc., necessary to complete the installation. The provision of structural supports over and above that required for the building structure is the responsibility of this Section.
 - c. Prior to installation of hanger rods and other pipe supports, obtain approval from the Commissioner for proposed method of hanging and for exact location of all mounting points. Submit weights and location of all piping to the Commissioner for approval well in advance of general construction work to allow sufficient time for structural redesign to accommodate the installation.
 - d. Place piping in proper alignment and position prior to connection to anchors, expansion loops, joints, and equipment. Furnish jacking devices, temporary steel structural members and assembled structures as necessary. Remove temporary equipment and structures at the completion of the work.
 - e. Reinforce piping at anchor points.
 - f. For life safety systems only seismic supports are required as indicated in the New York City Basic Building Code. Contractor shall provide signed and sealed calculations and submittals by a professional engineer licensed in the State of New York for proper seismically designed supports.
3. Sleeves:
- a. Provide sleeves for all pipes passing through floors, rated partitions and walls of sufficient diameter to accommodate pipe covering where such is required. Set sleeves for concrete floors, walls, and other masonry work in place before the floors or walls are poured or built. Locate sleeves secure in place so that space all around the pipes, after the pipes are installed in place is about equal. Anchor sleeves by use of anchor flanges embedded in concrete or at each end of sleeve. Properly firestop around sleeves after wall is constructed.
 - b. Provide sleeves for all pipes passing through non-rated partitions or ceilings. Size sleeves to accommodate pipe covering where applicable. Sleeve seam to be drive slip. Sleeve to be flanged 1" at each end to lock sleeve into penetration.
 - c. For sleeves at penetrations of the metal deck, attach to the deck prior to the pouring of the deck concrete. Set sleeves in such a manner so that no concrete fills their interior during the concrete pouring operations.
 - d. Caulk floor sleeves for exposed pipes watertight and project sleeve approximately 2" above the finished floor. Finish sleeves flush with the bottom of slab and also with the finished faces of wall.
 - e. Provide sleeves with an inside diameter at least ½" greater than outside of pipe served, including pipe insulation which must be continuous through sleeve, except as detailed on the Drawings.
 - f. Where piping penetrates non-rated walls, partitions, etc., pack space between piping and sleeve with mineral wool. At penetrations through foundation walls, rated walls, and floor slabs provide firestop material as specified and shown on the Drawings.



- g. Do not support pipes by resting clamps on sleeves. Clamps must extend beyond sleeve and be supported outboard of sleeve in an approved manner. In no case shall sleeves be cut or slotted to accommodate pipe clamps.
 - h. Where space for future pipes and conduits is required, provide sleeves and fill with lightweight concrete.
 - i. Sleeves penetrating floor and roof slabs shall extend at least 2" above slab.
 - j. Cover all pipe/sleeve/firestopping gaps using escutcheons.
4. Drain Installation:
- a. Coils and vessels which contain water to have connections suitably located, and valved outlets, to permit individual venting and draining.
 - b. Provide valved drains with hose bibb at low points of piping systems and at the bottom of each riser.
 - c. Provide cooling coil condensate drains, fan drains, and all unit casing drains with 2-inch minimum trap seal, unless otherwise noted, to spill over floor drains.
 - d. Provide 1-inch minimum drain lines in sheet metal intake and discharge plenums not indicated to have floor drains. Pipe drains to nearest approved indirect waste.
5. Except as noted, make soldered joints with 95% tin and 5% antimony solder, having a melting point of not less than 460°F. Thoroughly clean solder joints before the application of the solder. Cut pipe square with burrs removed and apply flux before soldering.
6. Make brazed joints using brazing alloys with a melting point at or above 1,000°F.
7. Refrigerant Systems:
- a. Back purge refrigerant tubing with nitrogen during brazing operations.
 - b. Grade all refrigerant lines for proper oil return to compressor.
8. Install automatic valves, insertion pipe wells and energy meters in piping systems. Valves, wells and meters will be furnished under the work of other Sections or Divisions of the Specifications.
9. Steam Systems:
- a. Install steam pressure reducing valves and metering stations according to ANSI B31.1 and B31.9 standards.
 - b. Pipe flashed high and medium pressure steam to flash tank.
 - c. Install automatic control valves for the domestic hot water heaters.



- d. Provide drip trap assembly at low points and points where condensate may back up in front of control valves. Run condensate lines from traps to nearest condensate receiver. Where condensate lines form a trap, provide vent loop over the trapped section.
- e. Vent steam relief piping to atmosphere at locations approved by the Commissioner. Refer to exhaust head detail. Steam vents from flash tanks and condensate receivers shall be vented independently of pressure relief vents.

3.2 WELDING OF PIPING

- A. Where shown on drawings, specified or directed, use welded joints, outlets and flanges. Welded joints may also be provided elsewhere, at Subcontractor's option, except at points where it may be explicitly specified or directed to leave flanged joints.
- B. Whenever welded piping connects to equipment valves or other units needing maintenance, servicing, or possible removal, flange the connecting joints. Match the pressure rating of the pipe flanges with the pressure rating of the flanges on the equipment to which the piping connects. Provide flanged pipe sections to permit removal of equipment components.
- C. Welding Process: Sizes 4 inch and smaller, use either gas welding (oxyacetylene process) or metallic arc process; sizes above 4 inch, use metallic arc process.
- D. Preparation of Pipe Ends: For thicknesses up to 3/16 inch, ends shall be finished square or with 37½ degree bevel with a 1/16 inch band; for thicknesses 3/16 inch to 3/4 inch inclusive, ends shall be machined or ground to have a 37½ degree bevel with a 1/16 inch band per latest edition of ASTM B31.1.

END OF SECTION 23 52 10



**SECTION 23 55 00
REFRIGERATION MACHINES (WATER COOLED)**

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

- A. Provide water cooled refrigeration machines, as described herein, in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Electric Rotary Type (Screw) Chillers.
B. Variable Frequency Drives.
C. Refrigerant Monitoring System.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
B. Submit manufacturer's drawings indicating certified dimensions, weights, minimum clearances, and wiring diagrams.
C. Submit manufacturer's data indicating model numbers, certified performance characteristics (KW input vs tonnage output) at 100%, 80%, 60%, 40%, and 20% of rated capacity. Include certified sound power levels.
D. Submit manufacturer's test reports for each machine certified by technician that ran the factory test.
E. Submit ASME certification.
F. Provide M.E.A. or BS&A numbers with submittals.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
B. Construct refrigeration machines to comply with the following standards organizations:
1. ASME Unified Pressure Vessels.



2. ANSI-B9.1.
 3. ASHRAE 15-78 Safety Code for Compressor Castings.
 4. ANSI/ASHRAE 15 Safety Code for Mechanical Refrigeration.
- C. Performance to be AHRI certified.
- D. Performance test each machine at factory prior to shipment.
- E. The compressors are to be completely assembled at the factory and hydrostatically tested either before or after assembly of shaft and rotor. Pressure test the compressors after assembly with a mixture of refrigerant and air, the casing, joints and connections being tested with a Halide torch. After assembly of the complete unit on the job, pressure test the unit with a mixture of refrigerant and air, and test all connections and welds with a Halide torch and make refrigerant-tight. The complete unit to be dehydrated by producing a vacuum of .03 in Hg absolute, maintained for 4 hours. At the end of this period the pump is to be stopped and vacuum maintained in refrigeration unit for a period of 24 hours without losing more than .01 in Hg.
- F. All centrifugal water chilling units shall be factory tested at full load (100%), seventy-five percent (75%), fifty percent (50%), and twenty-five percent (25%) load to ensure that the water chilling units are in compliance with AHRI Standard 550/590-2003 for capacity and efficiency performance. Factory test shall be witnessed by the City of New York and Commissioner. Water chilling units shall be rated as per AHRI 550/590-2003 and shall produce 100% of the specified capacity (0% AHRI 550/590 tolerance on tons). Allowable power input tolerances shall be the more stringent of the AHRI Standard 550/590-2003 or five (5%) percent at all conditions down to a minimum of twenty-five (25%) percent load. Evaporator and condenser water pressure drop shall not exceed 105% of the specified pressure drop at design conditions.
- G. Refrigerant to be non-ozone depleting in accordance with ASHRAE Guideline 3-1990.

1.6 WARRANTY

- A. Manufacturer shall provide one (5) year warranty.

PART 2 - PRODUCTS

2.1 ELECTRICAL ROTARY TYPE REFRIGERATION MACHINES

- A. Provide each water chilling unit of the accessible rotary type driven by a gas refrigerant cooled or liquid refrigerant cooled electric motor, or open air-cooled motor. Provide compressor motors of the squirrel cage type suitable for operation at 3600 rpm and with the current and starting characteristics as specified herein. Manufacturer to provide variable frequency drive.
- B. Compressor
1. Equip each unit with a high performance, variable speed, direct drive or gear driven screw compressor. Maximum impeller speed to be 10,000 rpm.

Refrigeration Machines (Water Cooled)



2. Compressor and motor rotor assembly to be statically and dynamically balanced over the full range of speed.
3. If open motors are used in lieu of refrigerant cooled motors, state the motor efficiency to calculate the additional ventilation or air conditioning load to be added to the equipment room in order to dissipate the motor heat rejected. It will be the Contractor's responsibility to bear the cost of additional equipment room ventilation or air conditioning needed if he chooses to use an open type machine in his bid. Include all associated costs such as piping, wiring, insulation, controls, etc., in this increase in the plant cooling.
4. Compressor assembly to be run tested at the factory. Vibration not to exceed 1.0 mil at the bearings.
5. Build the rotor of noncorrosive material so as to be unaffected by contact with the refrigerant. Construct compressor casing to permit removal of rotor shaft. Provide casing joints with gaskets of suitable material to prevent inward or outward leakage.
6. Select compressors to ensure stable operation at all operating points from 10% to maximum rated load at design conditions, in accordance with ARI 550-88.
7. Compressor bearings must have individual design life of 50 years or greater when operating at AHRI conditions.
8. Compressor shall provide capacity modulation from 100% to 15% capacity without the use of hot gas bypass or mechanical unloaders.
9. Compressor shall be provided with a factory-installed positive pressure lubrication system to deliver oil under pressure to bearings and rotors at all operating conditions. Lubrication system shall include:
 - a. Oil pump with factory-installed motor contactor with overload protection.
 - b. Oil pressure sensor with differential readout at main control center.
 - c. Oil pressure regulator.
 - d. Oil filter with isolation valves to allow filter change without removal of refrigerant charge.
 - e. Oil sump heater (115 v, 60 Hz) controlled from unit microprocessor.
 - f. Oil reservoir temperature sensor with main control center digital readout.
 - g. All wiring to oil pump, oil heater, and controls shall be pre-wired in the factory and power shall be applied to check proper operation prior to shipment.
10. Compressor shall be fully field serviceable. Compressors that must be removed and returned to the factory for service shall be unacceptable.
11. Acoustical attenuation shall be provided as required, to achieve a maximum (full load) sound level, measured per AHRI Standard 575 (latest edition).



C. Evaporator and Condenser

1. Provide shell-and-tube type refrigerant condensers and evaporators constructed of welded steel designed for the circulation of the quantity of water scheduled. The total water side pressure drop from the inlet to the outlet (including water boxes) not to exceed that shown on the schedules.
2. Tubes to be of copper, high efficiency type with internal and external fins, nominal 3/4" outside diameter and minimum wall thickness of .028 inch at the root of the fin. Tubes rolled into grooved holes in the tube sheet and must be removable without affecting the strength or durability of the tube sheet or causing any leakage at adjacent tubes. Water velocity in the tubes not to exceed 10 feet per second.
3. Suitable baffles to be provided to prevent direct impingement of the refrigerant gases upon the tubes and to distribute the gas uniformly over the length of the condenser. A suitable carbon steel baffle sheet is to be provided for the segregation and collection of the non-condensable gases. Provide appropriate thickness of materials to prevent corrosion of the condenser shell. A connection is to be provided at the proper location for the removal of non-condensable gases.
4. Refrigerant side proof-tested at 1.5 times maximum design working pressure but not less than 300 psig. Working pressure equivalent to saturated pressure temperature at 125°F. Provide safety relief valve and relief piping to outdoor for the refrigerant circuit.
5. Furnish 1" valved drain connection and 1" vent connection on each water box.
6. Provide marine style waterboxes rated at 150 psig at the evaporator condenser both evaporator and condenser for access to tube bundle constructed of high grade fabricated steel or other material suitable for the specified pressures. Pass arrangements as scheduled.
7. Provide marine type water boxes in the condenser constructed of high grade steel suitable for the specified pressures.
8. Optional compressor discharge isolation valve and liquid line ball valve shall be provided integral to the chiller. These items shall be factory-installed to allow isolation of the refrigerant charge in the condenser for servicing the compressor. If not available, a free-standing refrigerant storage tank and pumpout unit shall be provided. The storage vessels shall be designed per ASME Section VIII Division 1 code with 300 psig design pressure. Double relief valves per ANSI/ASHRAE 15, latest edition, shall be provided. The tank shall include a liquid level gage and pressure gage. The pumpout unit shall use a semi-hermetic reciprocating compressor with water-cooled condenser. Condenser water piping, 3-phase motor power, and 120-volt control power shall be installed at the jobsite by the subcontractor. All required equipment, piping, electrical and controls shall be provided by the subcontractor to facilitate a complete installation.

D. Motors

1. Compressor motor to be single speed, non-reversing, squirrel cage induction type suitable for scheduled voltage and operating at 3,600 rpm at 60 Hz. Full-load operation of motor not to exceed nameplate rating.



2. Motor starter to be arranged for service or removal with only minor compressor disassembly and without breaking refrigerant piping connections.
3. Equip motors with suitable cable connection boxes mounted in location to provide full access to all terminals and capable of accepting all the necessary feeder conductors. Size the cable terminals for the full load current and to accept copper conductors without excessive heating of the terminals. The responsibility for proper function and performance of the connection box is included in the scope of work.

E. Controls

1. Provide each unit with capacity control accomplished by a slide valve in the rotor section of the compressor. Positioned along the top of the rotors and parallel to the rotors, the slide valve is driven by a piston/cylinder. Arrange the capacity control system to stop the water chilling unit whenever the loads fall below 10%. When stopped by the low load recycle system, provide at least 30 minutes time delay prior to restart.
2. Provide a factory mounted control panel to provide automatic shutdown with manual reset on detection of low evaporator temperature and pressure, high condenser temperature and pressure, high motor temperature, motor overload, phase reversal or low oil flow. Provide a set of dry contacts that will open whenever any of the aforementioned alarms activate. In addition, the control panel is to provide automatic shutdown and automatic reset on detection of low voltage, loss of chilled water flow and loss of condenser water flow. Provide a 30 minute time delay prior to restart. The chiller control system shall have the ability to interface and communicate directly to the building control system. All chiller and motor control monitoring shall be displayed at the chiller control panel.
3. Provide a discharge chilled water temperature controller with the ability to accept a 4-20 milliamp input that will reset the discharge temperature setpoint.
4. Provide continuous variable position demand limiter to provide manual control of power demand at all operating points from 40% to 100% of full load power.
5. Flow switches to be interlocked with the control circuit to prevent the machines from running if adequate flow is not established in the condenser or chilled water circuits.
6. Provide a menu driven display that indicates the operating code, the last diagnostic code, chilled water set point, current limit set point and leaving chilled water temperature. Display entering chilled water temperature and the entering and leaving condenser water temperature on control panel. The display screen shall be able to indicate the following minimum information:
 - a. Date and time of day
 - b. 24-character primary system status message
 - c. 24-character secondary status message
 - d. Chiller operating hours



- e. Entering chilled water temperature
 - f. Leaving chilled water temperature
 - g. Evaporator refrigerant temperature
 - h. Entering condenser water temperature
 - i. Leaving condenser water temperature
 - j. Condenser refrigerant temperature
 - k. Oil supply pressure
 - l. Oil sump temperature
 - m. Percent motor rated load amps (RLA) Evaporator pressure
 - n. Condenser pressure
 - o. Compressor speed
 - p. Bearing oil supply temperature
 - q. Compressor discharge temperature
 - r. Motor winding temperature
 - s. Number of compressor starts
 - t. Control point settings
 - u. Discrete output status of various devices
 - v. Variable frequency drive status
 - w. Optional spare input channels
 - x. Line current and voltage for each phase
 - y. Frequency, kW, kWhr, demand kW
7. Schedule functions - The chiller controls shall be configurable for manual or automatic start-up and shutdown. In automatic operation mode, the controls shall be capable of automatically starting and stopping the chiller according to a stored user programmable occupancy schedule. The controls shall include built-in provisions for accepting:
- a. A minimum of two 365-day occupancy schedules.



- b. Minimum of 8 separate occupied/unoccupied periods per day
 - c. Daylight savings start/end
 - d. 18 user-defined holidays
 - e. Means of configuring an occupancy timed override
 - f. Chiller start-up and shutdown via remote contact closure
8. Network Window Function - Each chiller control panel shall be capable of viewing multiple point values and statuses from other like controls connected on a common network, including controller maintenance data. The operator shall be able to alter the remote controller's set points or time schedule and to force point values or statuses for those points that are operator forcible. The control panel shall also have access to the alarm history file of all like controllers connected on the network.
9. Pump Control - Upon request to start the compressor, the control system shall start the chilled and condenser water pumps and shall verify that flows have been established.
10. Ramp Loading - A user-configurable ramp loading rate, effective during the chilled water temperature pulldown period, shall prevent a rapid increase in compressor power consumption. The controls shall allow configuration of the ramp loading rate in either degrees per minute of chilled water temperature pulldown or percent motor amps per minute. During the ramp loading period, a message shall be displayed informing the operator that the chiller is operating in ramp loading mode.
11. Safeties - Unit shall automatically shut down when any of the following conditions occur (each of these protective limits shall require manual reset and cause an alarm message to be displayed on the control panel screen, informing the operator of the shutdown cause):
- a. Motor overcurrent
 - b. Over voltage
 - c. Under voltage
 - d. Single cycle dropout
 - e. Low oil sump temperature
 - f. Low evaporator refrigerant temperature
 - g. High condenser pressure
 - h. High motor temperature
 - i. High compressor discharge temperature
 - j. Low oil pressure



- k. Prolonged stall
- l. Loss of evaporator water flow
- m. Loss of condenser water flow
- n. Variable frequency drive fault
- o. High variable frequency drive temperature

F. Vibration Isolation

- 1. Chiller manufacturer shall furnish neoprene isolator pads for mounting equipment on a level concrete surface.

G. Start-Up

- 1. The chiller manufacturer shall provide a factory-trained representative, employed by the chiller manufacturer, to perform the start-up procedures as outlined in the Start-Up, Operation and Maintenance manual provided by the chiller manufacturer.
- 2. Manufacturer shall supply the following literature:
 - a. Start-up, operation and maintenance instructions.
 - b. Installation instructions.
 - c. Field wiring diagrams.
 - d. One complete set of certified drawings.

2.2 VARIABLE FREQUENCY DRIVES

A. Remote mounted variable frequency drive to be supplied by the centrifugal rotary chiller manufacturer.

B. General:

- 1. VFD shall be air cooled, microprocessor based, pulse width modulated design. Water-cooled designs are not acceptable.
- 2. Output power devices shall be insulated gate bipolar transistors (IGBTs).
- 3. Converter section with full-wave fixed-diode bridge rectifier shall convert incoming fixed voltage/frequency to fixed DC voltage.
- 4. DC link shall filter and smooth the converted DC voltage.



5. Transistorized inverter and control regulator shall convert fixed DC voltage to a sinusoidal PWM waveform.
 6. Integrated controls shall coordinate the motor speed to optimize chiller performance over a wide variety of operating conditions.
- C. Enclosure:
1. Pre-painted unit mounted, NEMA 1 cabinet shall include hinged, lockable doors and removable lifting lugs.
 2. VFD shall have an Amp Interrupt Capacity (AIC) of 35,000 amps and a short circuit current rating of 25,000 amps.
 3. Provisions to padlock main disconnect handle in the "Off" positions shall be provided. Mechanical interlock to prevent opening cabinet door with disconnect in the "On" position or moving disconnect to the "On" position while the door is open shall be provided.
 4. Provisions shall be made for top entry of incoming line power cables.
- D. Heat Sink:
1. The heat sink shall be refrigerant cooled. Heat sink and mating flanges shall be suitable for ASME design working pressure of 185 psig.
 2. Refrigerant cooling shall be metered by integrated standard controls to maintain heat sink temperature within acceptable limits for ambient temperature.
- E. VFD Rating:
1. Drive shall be suitable for nameplate voltage $\pm 10\%$.
 2. Drive shall be suitable for continuous operation at 100% of nameplate amps and 150% of nameplate amps for 3 seconds.
 3. Drive shall comply with applicable UL and NEMA standards.
 4. Drive shall be suitable for operation in ambient temperatures between 40 and 104 F (4.4 and 40 C), 95% humidity (non-condensing) for altitudes up to 3300 feet (1006 m) above sea level. Specific drive performance at jobsite ambient temperature and elevation shall be provided by the manufacturer in the bid.
- F. eUser Interface:
1. Displays shall provide interface for programming and display of VFD and chiller parameters. Viewable parameters include:
 - a. Operating, configuration and fault messages.



- b. Frequency in hertz.
- c. Load side voltage and current (at the VFD).
- d. kW (on the VFD interface).

G. VFD Performance:

- 1. VFD full load efficiency shall meet or exceed 97% at 100% VFD Rated Ampacity.
- 2. Base motor frequency shall be 60 hertz.
- 3. VFD Electrical Service: (single point power):
 - a. VFD shall have input circuit breaker with minimum 35,000 amp interrupt capacity.
 - b. VFD shall have standard 15 amp branch oil pump circuit breaker to provide power for chiller oil pump.
 - c. VFD shall have standard 3 kva control power transformer with circuit breaker provides power for oil heater, VFD controls and chiller controls.
 - d. The branch oil pump circuit breaker and control power transformer shall be factory wired.
 - e. Input power shall be as scheduled on the contract schedules.

H. Discrete Outputs:

- 1. 115V discrete contact outputs shall be provided for:
 - a. Chilled water pumps
 - b. Condenser water pumps.
 - c. Alarm status.

I. Analog Output:

- 1. An analog (4 to 20 mA) output for head pressure reference shall be provided. This signal shall be suitable to control a 2-way or 3-way water regulating valve in the condenser piping.

J. Protection:

- 1. Under-voltage.
- 2. Over voltage.
- 3. Phase loss.



4. Phase unbalance protection.
5. Programmable auto re-start after loss of power.
6. Motor overload protection (NEMA Class 10)
7. Motor over temperature protection

K. Testing:

1. The VFD shall be tested prior to shipment.

2.3 ACOUSTICAL PERFORMANCE

- A. Sound pressure levels for the complete unit are not to exceed specified levels. Manufacturer will provide the necessary acoustic treatment to chiller as required. Sound data to be measured in accordance with ARI Standard 575-87. Data is in dB, reference .0002 dyne/cm², measured along a perimeter 3 ft. from machine at a height of 5 ft. above floor. Data is at the highest levels recorded in three (3) operating positions: 100% load, 50% load and 25% load.
- B. The maximum permitted sound level is 90 dba when measured as described above.

2.4 ALTERNATE REFRIGERANTS

- A. Chillers which are intended to be operated with CFC refrigerants at the present time, must be designed for operation with a compatible HCFC refrigerant in the future. Compatibility means that chiller capacity and energy requirements for the refrigerant to be used in the future will not vary by more than 10% as compared to the refrigerant to be used in initial operation, and that all seals, winding, etc., which come in contact with refrigerant will not have to be changed or altered.

2.5 REMOTE SHUTDOWN CONTROL SWITCH

- A. Furnish and turn over to the electrical subcontractor for installation two (2) pushbutton operated remote shutdown switches, break-glass type, red painted, to shut down all electrical power to chillers and start ventilation system.

2.6 REFRIGERANT MONITORING SYSTEM

- A. Provide a vapor activated alarm system consisting of all alarms, sensors, tubing, safeties and interface modules as required by ANSI/ASHRAE Standard 15 Safety Code for Mechanical Refrigeration (latest edition).
- B. System shall employ infrared technology and shall be capable of responding and displaying to HFC-134A levels of 0 PPM to 1000 PPM allowable exposure limit (AEL).
- L. The system shall be designed to accommodate 4 sensors, now, but be expandable to 28 sensors total on the basis of the following:



1. (2) sensors each for new chillers.
2. (1) sensor for each refrigerant vent pipe.

M. The vapor activated alarm system shall include the following features:

1. Monitor shall be compound specific with a measurement and display range 0-1000 ppm.
2. The monitor must be calibrated for the specified refrigerant.
3. The display accuracy shall be 1 ppm.
4. Three factory-set alarm levels shall be provided, each with a front panel light and a latching binary contact closure for the control of remote devices.
5. An analog output corresponding to the unit display is required for connection to the building automation or other recording equipment.
6. A means to automatically re-zero the instrument must be included.
7. Regular maintenance of the unit shall be limited to recalibration once per year and monthly confirmation of clean air source for recalibration.
8. Ambient temperature operating range shall be 40 to 105 deg F.
9. UL approved device.

N. Manufacturers

1. MSA Chillgard RT
2. Trane
3. Emerson
4. or approved equal.

PART 3 - EXECUTION

3.1 REFRIGERANT AND LUBRICATING OIL

- A. Provide a complete charge of refrigerant and of approved lubricating oil for each refrigeration machine. Provide lubrication charts. Replace refrigerant and lubricating oil lost during the first year (after the substantial completion date) due to equipment defects at no cost to the City of New York.
- B. Before units are started up, pump new grease into bearing housings to force out old grease and provide adequate lubrication.



- C. Before acceptance of the equipment, all tests are to be conducted as required to demonstrate that the equipment operates mechanically and electrically as specified.
- D. A satisfactory operational test is to be conducted in the presence of the Commissioner
- E. If required for access into the building, disassemble each chiller at the factory; ship components charged with dry nitrogen; reassemble at job site under manufacturer's supervision and test for leaks. It is the Contractor's responsibility to determine the need for disassembly.
- F. Provide piping from rupture discs to out-of-doors.
- G. The Contractor is to install the chiller in accordance with the manufacturer's recommendations.
- H. Chiller manufacturer is to provide properly trained factory service personnel for startup and City of New York operating personnel for instruction.
- I. Align chiller on concrete foundations and sole plates. Level and grout in place. Install units on vibration isolation as specified in Section 23 05 48, "Vibration Isolation."

END OF SECTION 23 55 00



**Department of
Design and
Construction**

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**SECTION 23 73 05
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 WORK INCLUDED

- A. Centrifugal Fans
 - 1. Scroll
 - 2. Cabinet
 - 3. Tubular Centrifugal

1.3 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Submit manufacturer's latest published data for dimensions, materials, accessories and installation details.
- C. Submit full technical rating data based on tests in accordance with current AMCA standards and in an AMCA approved laboratory. Include manufacturer's certified fan performance curves, and certified sound power ratings. Correct all ratings and curves for altitude and temperature where applicable.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Construct all fans, except vaneaxial adjustable blade, to comply with the requirements of the latest editions of the Air Moving and Conditioning Association (AMCA) Standards and Bulletins. Certify these fans by AMCA for performance ratings and provide the AMCA Performance and Construction Seal.
- C. Install fans, with their accessories, to comply with the recommendations of the National Fire Protection Association (NFPA).

1.5 WARRANTY

- A. Manufacturer shall provide one (1) year warranty.



PART 2 - PRODUCTS

2.1 GENERAL - ALL FANS

- A. Unless noted otherwise, provide discharge direction and drive arrangement to suit space conditions and conform as closely as possible to the layouts shown on the Drawings.
- B. Provide fans that are quiet operating and non-overloading over the entire range of operation.
- C. Provide fan motors in accordance with section entitled "Electric Motors." Size motor to drive its respective fan when the fan is operating at a speed 5% in excess of that required to meet the scheduled fan performance. Do not select motors within the service factor for this range.
- D. Provide fan starters in accordance with section entitled "Motors Controllers" for installation by Division 26.
- E. Statically and dynamically balance fan wheels/impellers at the factory and so certify.
- F. Provide precision self-aligning bearings designed to prevent leakage of oil or grease. Provide cups, oil chambers, Zerk or Alemite lubrication fittings in accessible locations for ease of lubrication. Provide heavy duty split pillow block bearings with tapered, double-row spherical roller assemblies. Provide bearings with service life in excess of 200,000 hours at maximum cataloged fan operating conditions.
- G. Provide copper lubrication leads, for lubrication of internal motors and bearings, extending to a capped termination point external to the fan casing.
- H. Extend wire leads on fans driven by direct motor drive from the motor in air tight rigid walled conduit, to a junction box mounted external to the fan casing.
- I. On fans driven by belt drive provide standard "V-groove" type belts and sheaves suitable for the service intended. Fan sheaves are non-adjustable type with removable machined bushings. Provide adjustable pitch type motor sheaves with double locking feature, to 10% above and below the rated fan speed. Dynamically balance sheaves with over three grooves. For fan motors over 10 horsepower, provide at least two belts. Multiple belt drives shall be capable of carrying the entire load with one belt broken. Provide preformed expanded metal or sheetmetal belt guards, with grommeted tachometer ports at the fan and motor shafts, for all exposed sheaves and belts.
- J. For motors in the airstream, provide TEAO or ODP type motors.
- K. Provide solid hot rolled steel drive shafts, accurately turned and polished to a close tolerance where in contact with bearings. Secure fan wheels/impellers to the drive shaft by a key and keyway assembly.
- L. Manufacture fans of materials and finishes suitable for the service intended.
- M. Construct wheels/impellers exposed to normal atmospheres of mild steel, hot dip galvanized, and finished with two layers of factory applied non-scaling paint.
- N. Construct fans exposed to corrosive atmospheres of corrosion resistant materials suitable for intended use, and factory finished with epoxy or other approved corrosion resistant coatings.



- O. Provide fans exposed to elevated temperatures with components rated for high temperature service. Do not use belt drive assemblies exposed to the airstream. Use direct drive motors certified for high temperature service.
- P. Construct fans used to convey flammable vapors of non-sparking (non-ferrous) materials, and use explosion proof motors.
- Q. Electrically ground fan and drive to prevent accumulation of static charge.
- R. Completely house fan assemblies exposed to weather in weatherproof enclosures including motor and drive.
- S. Fan wheels/impellers and casings shall be relieved of residual stresses produced in the forming process.
- T. Provide fans used to exhaust grease laden vapors with motor drive and bearings completely external of air stream.
- U. Provide housings with integral inlet and discharge flanges, complete with bolt holes for duct connections.
- V. Provide parallel vane pre-rotation vortex dampers at the fan inlet for variable volume control. Furnish and install all necessary linkages and accessories required for automatic control.
- W. Provide variable frequency drive as specified in section entitled "Adjustable Frequency Controllers."
- X. Provide gasketed access doors to permit routine maintenance and inspection of motor and internal components.

2.2 CENTRIFUGAL FANS

A. Scroll Type

- 1. Provide backward inclined (BI), backward curved (BC), airfoil (AF), forward curved (FC) fan wheels, and single width single inlet (SWSI), or double width double inlet (DWDI), as indicated on the Drawings, enclosed in a scroll shaped fan housing.
- 2. Weld or securely rivet fan blades to the hub plate and rim.
- 3. Rigidly build and brace curved scroll shaped housings with continuous welded seams and joints. Lockseam construction may be accepted for smaller fan sizes where it is standard construction for models listed on Drawings.

B. Tubular Type

- 1. Provide backward inclined or airfoil fan wheels as indicated on the Drawings, in a cylindrical housing, with integral inlet venturi and airflow straightening vanes, arranged to impart unidirectional air flow.
- 2. Weld fan blades to the hub plate and rim. Backward inclined blades may be securely riveted to the hub plate and rim. Precisely cast aluminum fan wheels and machine finish.



3. Match the wheel inlet ring to a close tolerance with integral deep spun aerodynamic venturi inlets.
4. Provide radial air flow straightening vanes at the fan discharge.

C. Cabinet Type

1. Provide scroll type centrifugal fans, factory installed within a cabinet enclosure, and comply with the requirements of Scroll Type Centrifugal Fans.
2. Internally isolate fan and motor assemblies from the cabinet.
3. Provide gasketed access doors and panels for inspection and routine maintenance of the internal components.
4. Provide solid state variable speed controllers for small ceiling mounted direct driven exhausters and transfer fans.

D. Manufacturers

1. Loren Cook
2. Barry Blower
3. Buffalo
4. Trane
5. Greenheck
6. Penn
7. Aerovent
8. Peerless
9. Or approved equal

PART 3 - EXECUTION

- A. Refer to DDC General Conditions
- 3.2 Install fans in accordance with manufacturer's recommendations and as shown on the Drawings. Follow SMACNA and AMCA recommended procedures for fan installations, belt guards, duct connections, etc.
 - 3.3 Provide flexible connections as described in specification section 23 11 13 entitled "Sheetmetal, Ductwork and Accessories" to provide sufficient separation of ductwork from fan assembly to prevent metal-to-metal contact.



- 3.4 Install fans and motors with proper support and vibration isolation as specified in section 23 05 48 entitled "Vibration Isolation".
- 3.5 Provide sufficient clearances around fans for access and servicing of components. Install fans such that access doors, motors, belts, lubrication lines, electrical connections, etc. are readily accessible and not obstructed by other installations or structures.
- 3.6 Bump start fans to check that fan wheel/impeller rotation corresponds to the desired direction of air flow. Correct fans found to be rotating in a direction opposite to that desired.
- 3.7 Tighten belt drives, taking into account the service factor and any other design of the drive. Exercise care not to overtension belts.
- 3.8 Check all bolts and fasteners to ensure proper tightness. Do not overtighten nuts and bolts.
- 3.9 Check bearings and motor for proper lubrication, taking care not to overlubricate. Use only lubricants recommended by the manufacturer.
- 3.10 Provide a drain at the bottom of the housing for fans discharging upward from the roof. Pipe drains from housings of interior fans discharging directly up through the roof indirectly to a floor drain. Pipe drains from housings of kitchen grease exhaust fans to a grease interceptor.

END OF SECTION 23 73 05



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**SECTION 23 85 00
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 DESCRIPTION

- A. Provide variable frequency controllers (VFC) in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Variable Frequency Controller.
- B. Control Interface.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Provide manufacturer's descriptive literature, installation instructions, operating instructions, and maintenance and repair data.
- C. Provide all electric wiring control diagrams for the VFC operation.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Test all integrated circuits (TTL) and all components used for circuit board construction to an acceptance criteria of 0.5% AQL (Accepted Quality Level).
- C. Conduct in-circuit testing of all printed circuit boards to insure proper mounting and correct value of all components.
- D. Burn-in all printed circuit boards for at least 24 hours, at a minimum of 70°C, and temperature cycled.
- E. Functionally test final printed circuit board assemblies via computerized test equipment where all tests and acceptance criteria are preprogrammed and test results are stored as detailed quality assurance data. The Commissioner may witness the factory tests. Provide at least two (2) weeks written notice prior to start of the factory test.



- F. Combine-test all fully assembled controls for performance and functionality at the manufacturer's factory with fully loaded induction motors. Analyze the combined test data to insure adherence to quality assurance specifications.
- G. Variable frequency controllers to the establish the following standards:
 - 1. E.T.L. and/or U.L.
 - 2. NEMA - ICS-3-303.
 - 3. F.C.C. Class A.
 - 4. IEEE STD 444 (ANSI C34.3).

1.6 WARRANTY

- A. Manufacturer shall provide one (1) year warranty.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The manufacturer must provide local, in-house service backup which must include properly trained personnel for electrical component maintenance and troubleshooting.
- B. Purchase motors and variable frequency controllers from a single source. Verify in writing that the motors and variable frequency controllers operate together as a system; fully compatible and without excessive noise or vibration.
- C. Provide 460 VAC variable frequency controllers of the pulse width modulated (PWM) design that operate directly from three phase, 460 VAC $\pm 10\%$, 60 hertz utility power. The VFC will generate a sine-coded, adjustable voltage/frequency three phase output for complete speed control of any NEMA B squirrel cage induction motor. The VFC to maintain a 120% current overload capability for 60 seconds with automatic stall prevention and voltage boost to prevent nuisance tripping during load or line side transient conditions. The VFC not to induce voltage line matching distortion back to the building electrical power supply system and to maintain a power factor of not less than 0.95 throughout its speed range. Provide a tuned line filter, adjusted as required to prevent any electrical distortion back into the building electrical power supply system. Comply with FCC Class A noise emissions standard and so label.
- D. Provide the variable frequency controller with the following basic design:
 - 1. Converter: Consists of a modularized diode rectifier and capacitor assembly which will first convert, then filter and maintain a fixed DC voltage source from the fixed voltage and frequency input.
 - 2. Inverter: Inverter uses power transistor semiconductors with a minimum rating of 1100 VAC on 460 VAC controls to invert the converter generator fixed DC voltage into a sine-coded pulse width modulated output.



3. Control Logic: Consists of a single printed circuit board and incorporates an 8-bit, or larger, microcomputer central processing unit to control all inverter, converter, base drive and external interface functions.
4. Terminal strip for input signals from Building Control System for remote start/stop and speed control signal capabilities. Refer to BMS Specification for interface and coordination.
5. Enclosure: NEMA 1 enclosure, for typical indoor locations. Utilize NEMA Type 32 for outdoor locations and NEMA Type 4 for wet locations subject to water spray or very high humidity.

2.2 FEATURES

A. Include with the variable frequency controller the following minimum design features as standard:

1. Sine-coded, pulse width modulated output.
2. Eight (8) bit, or larger, microcomputer control logic.
3. Maximum and minimum speed adjustment capability.
4. Controlled speed range of 20:1, or greater.
5. Overload capability of 20% for 60 seconds.
6. Process follower 4-20 mA or 1-10 VDC, input.
7. Minimum of three (3) selectable output frequency ranges.
8. Fifteen selectable volts/hertz patterns.
9. Touch-pad operator controls or adjustable potentiometer with at least four (4) segment digital frequency/speedometers or digital readout displaying: output frequency, status, percent current, and percent response signal.
10. Input disconnect/circuit breaker with thru-door handle.
11. Torque or current limiting circuit.
12. Coast or ramp to stop.
13. Electronic reversing.
14. Adjustable acceleration and deceleration.
15. Fault indicators.
16. Fault contacts for interface with the BMS System.



17. External start/stop signal capability from the building control system.
 18. External speed control from a 4-20 mA or 0-10 VDC signal from control system.
- B. Provide the variable frequency controller with the following protective features as a minimum:
1. Ground fault protection.
 2. Electronic thermal motor overload or current limit control.
 3. Current limited stall prevention during acceleration, deceleration, and run conditions.
 4. Automatic restart, after momentary power loss or momentary over-voltage. No restart into ground fault.
 5. Controls for start into a rotating motor.
 6. Anti-windmill protection.
 7. Fault indicators shall indicate the following fault conditions:
 - a. Over-current
 - b. Overload
 - c. Over-voltage
 - d. Over-temperature
 - e. Control function error.
 8. DC bus discharge indicator.
 9. Current limiting DC bus fuse.
 10. Isolated operator controls.
 11. Phase-to-phase short circuit protection.
 12. Heat sink over-temperature protection.
- C. Make the following adjustments available on all variable frequency controllers:
1. Acceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
 2. Deceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
 3. Volts/hertz adjustments.



4. Maximum frequency range.
 5. Minimum frequency.
 6. Maximum frequency.
 7. Carrier frequency.
 8. Torque limit.
 9. The inverter supplier to provide line filters on the line to prevent interference from the line to the drive and prevent any electrical harmonic distortion back to the building electrical power supply system.
 10. Provide a signal isolator to isolate the control signal to and from the inverter drive.
- D. Provide the variable frequency controller with the following additional features:
1. One (1) door interlocked main power input disconnect circuit breaker to provide positive shutdown of all input power to the drive.
 2. The complete circuit breaker and overload relay package shall be mounted in the inverter cabinet or may also be available in its own separate enclosure adjacent to the inverter.
 3. 2200 Microfarad ride-through capacitor which shall provide assistance to maintain the D.C. bus voltage for a two-second momentary power loss or furnish automatic restart capability which allows restart into a rotating motor.
 4. One (1) complete set of spare parts for each size inverter consisting of the following:
 - a. Control fuses.
 - b. Control board.
 - c. Drive board.
 - d. Transistors.
 - e. Capacitors.
- E. Manual Bypass
1. Provide all the circuitry necessary to safely transfer the motor from the VFC to the power line, or from the line to controller at zero speed. Include a separate cabinet for the bypass circuit to house all devices which must be energized at either 480 VAC or 115 VAC.
 2. On the bypass cabinet include a door interlocked main power input disconnect circuit breaker, providing positive shutdown of all input power to both the bypass circuitry and the VFC. Motor protection to be provided in both the "Controller" mode and the "Bypass" mode by a motor overload relay.



3. The bypass cabinet door to include a "Controller-Off-Bypass" selector switch and "Controller Mode" indicator light and a "Bypass Mode" indicator light. Provide terminals for remote light indication of mode selection.
4. Include a door interlocked input disconnect circuit breaker for the bypass circuit installed in the VFC to facilitate troubleshooting and testing of the controller safely, both energized and de-energized, while operating in the "Bypass" mode.
5. Factory install the manual bypass with magnetic contactors.
6. Controller to be constructed so as to allow power to be disconnected from either mode yet maintain power to the other mode for uninterrupted motor operation. This disconnecting means must completely isolate either mode for maintenance purposes.
7. 5 kHz carrier frequency with dynamic noise control to ensure quiet motor operation and an on-board EMI/RFI filter compliant with IEC 61800-3 to minimize interference of surrounding equipment.

2.3 ENVIRONMENT

- A. Design the variable frequency controller to operate within the following environmental and service conditions:
 1. Ambient service temperature - 10°C to 40°C.
 2. Ambient storage temperature - 20°C to 60°C.
 3. Humidity - noncondensing to 90%.
 4. Altitude to 3300 feet.
 5. Service factor - 1.0.
 6. Input voltage - three phase, 460 VAC \pm 10%.
 7. Input frequency - 60 hertz \pm 5%.

2.4 MANUFACTURERS

- A. Asea-Brown-Boveri Parametrics
- B. Robicon
- C. Westinghouse
- D. Toshiba
- E. Or approved equal.



PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to DDC General Conditions
- B. All drive components including motor, sheaves, belts, fans, and pumps must have vibration levels checked at all speeds between 20 percent and 100 percent of the driven unit's design rpm. Vibration must be checked at fan and pump shaft bearings in radial (vertical and horizontal) and axial directions. If excessive vibration is found at any frequency, special balancing and structural changes must be provided to minimize harmonic vibrations.
- C. Contractor shall confirm with the new equipment manufacturer (e.g. chillers, pumps, cooling towers, etc.) as well as the VFD manufacturer as to facilitate their confirmation on any rotational mass moment of inertia modeling and potential for induced dynamic drive torque at the VFD. The contractor shall be responsible to coordinate with other related specification sections (i.e. BMCS and electric motors) and the contract drawings as necessary.
- D. Manufacturer shall confirm that the potential of equipment to create VFD induced dynamic drive torque over the entire range of expected fan operating speeds is not present. The VFD equipment control shall be tuned to the existing fan mechanical system(s) to prevent torsional vibration leading to drive shaft / bearing assembly failure. The contractor shall be responsible to coordinate with the manufacturer on new vibration switches to be integrated.
- E. VFD manufacturer to provide start-up effort that includes carrier frequency adjustment to minimize noise generated from related equipment.
- F. All equipment receiving new VFD and/or motors shall be provided with vibration malfunction switches to be integrated into the BMCS for alarm and shutdown of equipment. Switches shall be provided and installed under the BMCS specification section of this project, contractor shall coordinate with that section.

END OF SECTION 23 85 00



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**SECTION 23 86 00
ELECTRIC MOTOR 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 DESCRIPTION

- A. Provide electric motor controllers in accordance with the Contract Documents.

1.3 WORK INCLUDED

- A. Combination Starters and Disconnect Switches.

1.4 SUBMITTALS

- A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures" for all submittals.
- B. Shop Drawings
1. Submit a list of motor controllers required for the project. This list should include equipment tag, equipment motor size, starter type, starter features.
 2. Submit a statement of compliance, or non-compliance for each clause of this specification section.
 3. Submit a statement of understanding that each starter has a withstand rating that is coordinated with the electrical system installation.
 4. Submit shop drawings and manufacturer's data for all items in accordance with the conditions of the contract.
 5. Include control diagrams, unit wiring diagram for each motor controller, assembly outline drawings, summary sheets, shop interwiring diagrams, field connection diagrams, and nameplates with legends.
- C. Include a statement verifying coordination with the automatic temperature controls and the fire alarm system.

1.5 QUALITY ASSURANCE

- A. Refer to DDC General Conditions
- B. Motor Controllers: Comply with Underwriters' Laboratories standard UL-508 (being transitioned to WL 60947) and National Electrical Manufacturers Association Standard ICS 2-2000.



- C. Disconnect Switches: Comply with National Electrical Manufacturers Standard ICS 2-1996, Part 8 (R 2004, R 2009).
- D. Warranty shall be for 5 Years from date of substantial completion and shall cover replacement parts on all components.

PART 2 - PRODUCTS

2.1 COMBINATION STARTERS AND DISCONNECT SWITCHES

- A. Provide suitable fully coordinated starting and controlling equipment for motors as required. Arrange the starting equipment as indicated in other sections of these specifications.
- B. Consult with each trade affected to determine the exact requirements for each device.
- C. Coordinate with the Building Management and Control System (BMCS) subcontractor and the Fire Alarm subcontractor to establish required auxiliaries, including relays, contacts, terminals and the like. All three phase starters to have a minimum of (2) normally open and (2) normally closed auxiliary contacts.
- D. All starter interface and termination points for the Building Controls subcontractor and the Fire Alarm subcontractor shall be made at a terminal strip provided with the motor controller.
- E. Provide individual starters fully enclosed in neatly finished ventilated boxes of code gauge steel, machine formed and welded. Provide boxes arranged for floor, wall or angle iron frame mounting including a door with a spring catch handle with facility to lock handle in open position.
- F. Provide engraved nameplates for each unit, nomenclature of each to be approved prior to fabrication.
- G. Provide starters for motors less than 1/2 horsepower, as 120 volt, 1-phase, 60 cycle, or 277 volt 1-Phase, 60 cycle, alternating current service with pilot light. Provide manual starters with overload protection and lockout type disconnect switch to control such motors, except where interlocks or automatic controls are required. In such cases, provide magnetic across-the-line starters.
- H. Fire smoke dampers, smoke dampers and automatic louver dampers will be started using addressable relay modules provided by the fire alarm or building control compactor.
- I. Provide starters for motors 1/2 horsepower to 100 horsepower as magnetic across-the-line, combination Motor Circuit Protector or Circuit Breaker type. Such starters to be 208 or 480 volt, 3-phase, 60 cycle, alternating current service.
- J. Provide starters for motors over 100 horsepower to be magnetic, combination Soft Start with Motor Circuit Protector Switch. Such starters to be 208 or 480 volt, 3-phase, 60 cycle, alternating current service.
- K. Provide magnetic starters subject to manual start and in direct view of the motors they control with momentary contact start and stop buttons built into cover. Provide magnetic starters subject to electrical interlock or automatic control with Hand-Off-Automatic switches built into cover. Provide selector switches in starters to be of the maintained-contact type, water tight and dust tight.



- L. Provide starters with water tight and dust tight, (5) pilot lights on the following indications: Hand, Off, Auto, Run, and Overload.
- M. Provide starters for service at voltages higher than 120 volt with transformers for 120 volt secondary service built into each starter casing to serve control circuits.
- N. Provide each starter subject to electrical interlock and/or automatic control with the necessary auxiliary contacts plus one spare set of normally open and normally closed auxiliary contacts. Provide one set of terminals for each control circuit.
- O. Provide magnetic starters with Solid State Electronic Overload Relay which shall protect all three phases with a wide range current setting and trip class to allow field adjustment for specific motor FLA. Interchangeable heater elements are not acceptable. Overload relay shall provide phase failure, phase loss, locked rotor and stall protection.
- P. Provide coils, cores, resistance, insulation, contacts, trippers, etc., for starters and relays. The motor circuit protector shall be UL listed 508 current limiting manual motor starters with magnetic trip elements only. The breaker shall carry a UL 508F rating which provides for coordinated short circuit rating for use with the NEMA rated motor contractor and provides a minimum interrupting rating of 30 KAIC for the combination starter.
- Q. Provide over/under voltage and phase monitoring capability. Monitor shall be field adjustable for both over and under voltage levels and a delay time before returning to normal operation after a trip.
- R. Mount individual motor controllers in NEMA Type 1A enclosures for typical indoor locations. Utilize NEMA Type 3R for outdoor locations and NEMA Type 4 for other wet locations or locations subject to water spray or very high humidity.
- S. Coordinate the withstand rating of all starter components with the Electrical subcontractor and with the requirements of the electrical system. Starters that do not have appropriate withstand rating shall be removed from the project – at no cost – for operator safety.

2.2 MOTOR CONTROL CENTERS

- A. Coordinated with Division 26.

2.3 REFRIGERATION MACHINE STARTERS

- A. See specification section 23 55 00 entitled "Refrigeration Machines (Water Cooled)"

2.4 MANUFACTURERS

- A. Cerus
- B. General Electric
- C. Square Dee



- D. Siemens
- E. Eaton/Cutler Hammer
- F. Allen Bradley
- G. Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Various pieces of packaged equipment will be provided with starters installed by manufacturer at the factory. Coordinate the Division 26 work with these starters.
- B. Review Division 26 and Building Management Control System (BMCS) Documents for required accessories, interlocks, etc. Failure to fully coordinate this item with the other Divisions in no way relieves this Contractor from providing a complete, functional, and coordinated system as described.

END OF SECTION 23 86 00



SECTION 23 90 00

COMMISSIONING FOR HVAC SYSTEMS

PART I - GENERAL

1.1. RELATED DOCUMENTS

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. Commissioning consists of systematically documenting that specified components and systems have been installed and started up properly and then functionally tested to verify and document proper operation through all sequences of operation and conditions. In addition, instruction of The City of New York's Operations Personnel will be verified and final project O&M Documents will be reviewed for completeness.

1.3. QUALITY ASSURANCE

A. Reference Standards:

1. OSHA Part 1910; Subpart S. 1910.308.
2. American National Standards Institute: ANSI
3. American Society for Testing and Materials: ASTM
4. National Electrical Manufacturers Association: NEMA
5. National Fire Protection Association: NFPA
6. American Society of Heating, Refrigerating and Air-Conditioning Engineers: ASHRAE

B. All inspections and tests shall use the following references.

1. Contract Specifications.
2. Contract Drawings.
3. Manufacturer's instruction manuals and approved shop drawings for applicable equipment.

PART II - PRODUCTS

2.1. EQUIPMENT AND INSTRUMENTS FOR Cx PROCESS

- A. The Contractor shall furnish all tools, instruments, laptops, calibrated meters, software programs, personnel, and services required to perform the commissioning process. This includes providing the connection to systems to be tested, temporary alterations for test purposes, calibrations, operation of the test equipment & instrumentation and generating test results (as required), and the restoration of equipment/systems to original operating condition. A list of all tools and equipment to be used during commissioning shall be submitted to the CxA for approval. The Contractor shall furnish necessary utilities for the commissioning process.
- B. Proprietary test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of



the equipment. Proprietary test equipment (and software) shall become the property of The City of New York upon completion of the commissioning process.

2.2. COMMISSIONING DOCUMENTATION

- A. All documentation for the commissioning process shall be entered into the CxA's commissioning project progress tracking software tool. The Contractor will be allowed web-based access to the software upon request. Additionally, the Contractor may download the CxA's mobile application to a tablet format. The mobile application is available in Apple, Android, and Windows format. There is no fee associated with the software or the mobile application. The Contractor shall allow sufficient time to familiarize himself with the operation of the software.

PART III – EXECUTION

3.1. GENERAL

- A. Refer to DDC General Conditions
- B. The Contractor shall complete all phases of work so the systems can be started, tested, balanced, and acceptance procedures undertaken. This includes the complete installation of all equipment, materials, pipe, duct, wire, insulation, controls, etc., per the contract documents and related directives, clarifications, and change orders.

3.2. PARTICIPATION IN ACCEPTANCE PROCEDURES

- A. The Contractor shall provide skilled technicians to startup and debug all systems within the project contracted work. These same technicians shall be made available to assist the Commissioning Authority in completing the commissioning program. Work schedules, time required for testing, etc., shall be requested by the Commissioning Authority and coordinated by the Contractor. The Contractor shall ensure that the qualified technician(s) are available and present during the agreed upon schedules and of sufficient duration to complete the necessary tests, adjustments, and/or problem resolutions.
- B. System performance problems and discrepancies may require additional technician time, Commissioning Authority time, reconstruction of systems, and/or replacement of system components. At no additional cost to The City of New York, the additional technician time shall be made available for subsequent commissioning periods until the required system performance is obtained.
- C. The Commissioning Authority reserves the right to question the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or sub-system. Qualifications of technicians shall include expert knowledge relative to the specific equipment involved and a willingness to work with the Commissioning Authority. The Contractor shall provide adequate documentation and tools to start-up and test the equipment, system, and/or sub-system.

3.3. DEFICIENCY RESOLUTION

- A. In some systems, inaccurate adjustments, misapplied equipment, and/or deficient performance under varying loads will result in additional work being required to commission the systems. This work shall be completed under the direction of The City of New York, with input from the



Contractor, equipment manufacturer, and Commissioning Authority. Whereas all members shall have input and the opportunity to discuss, debate, and work out problems, The Commissioner shall have final jurisdiction over any additional work done to achieve performance.

- B. Corrective work shall be completed in a timely fashion to permit the completion of the commissioning process. Experimentation to demonstrate system performance may be permitted. If the Commissioning Authority deems the experimentation work to be ineffective or untimely as it relates to the commissioning process, the Commissioning Authority shall notify The Commissioner, indicating the nature of the problem, expected steps to be taken, and suggested deadline(s) for completion of activities. If the deadline(s) pass without resolution of the problem, The Commissioner reserves the right to obtain supplementary services and/or equipment to resolve the problem. Contractor shall provide supplementary services incurred to solve problems at no additional cost to the City of New York.

3.4. ADDITIONAL COMMISSIONING

- A. Additional commissioning activities may be required after system adjustments, replacements, etc., are completed. The Contractor, suppliers, and Commissioning Authority shall complete this work at no additional cost to the City of New York.

3.5. SEASONAL COMMISSIONING

- A. Seasonal commissioning pertains to testing under full load conditions during peak heating and peak cooling seasons, as well as part load conditions in the spring and fall. Initial commissioning shall be done as soon as contract work is completed, regardless of season. Subsequent commissioning may be undertaken at any time thereafter to ascertain adequate performance during the different seasons.

3.6. SUSTAINING SYSTEM READINESS

- A. The Commissioning Authority will prepare and issue to the Contractor Pre-Functional Checklist (PFC) forms for each system or major piece of equipment to be commissioned. Pre-Functional Checklists are important to ensure that the equipment and systems are installed and operational. It ensures that Functional Performance and Integrated Systems Testing may proceed without unnecessary delays. Each piece of equipment is to receive full pre-functional checkout by the contractor. No sampling strategies are to be used. The Pre-Functional Checklists for all equipment related to any given system must be successfully completed prior to formal Functional Performance and Integrated Systems Testing of the system.
- B. The Commissioning Authority will monitor and track the completion of the Pre-Functional Checklist forms.
- C. The Contractor shall complete the Pre-Functional Checklists, provided by the Commissioning Authority, as follows:
 - 1. Pre-Functional Checklists should be maintained in a binder(s) or electronically at the Contractor's project site office and are subject to review for comparison between the completion level of the Checklists and the status of the work during site observation visits by the Commissioning Authority.
 - 3. Complete Section 1 "Equipment Delivery" of the Pre-Functional Checklist after equipment delivery to the site.
 - 4. Complete Section 2 "Equipment Installation" of the Pre-Functional Checklist after the equipment installation is complete.



5. Complete Section 3 "Equipment Start-up" of the Pre-Functional Checklist after the equipment has been successfully started. The Contractor is to forward copies of all manufacturer's start-up forms and reports to the Commissioning Authority.
 6. Complete Section 4 "BAS/Power Monitoring/Lighting Control Integration" of the Pre-Functional Checklist after the equipment and systems control configuration and integration process has been completed.
 7. Complete Section 5 "Notification for Testing" of the Pre-Functional Checklist after the equipment is fully operational and ready for Functional Performance and Integrated Systems Testing.
 8. Completed and signed Pre-Functional Checklists are a pre-requisite for commencing Functional Performance and Integrated Systems Testing. If field observation indicates a significant deviation from actual installation conditions, all checklists will be returned to the Contractor for revision and resubmission at no additional cost to the City.
 9. Only individuals that have direct knowledge and witnessed that a line item task on the Pre-Functional Checklist was actually performed shall initial or check off that item.
- D. The Contractor shall clearly list any outstanding items from the Pre-Functional Checklists and/or manufacturer start-up reports and checklists that were not completed successfully in the Comments section of the applicable Pre-Functional Checklist. The Commissioning Authority will review any items/issues listed and will address them through discussion with the Commissioner and Contractor prior to proceeding with Functional Performance and Integrated Systems Testing.
- E. The Contractor shall develop detailed start-up plans for all equipment. These plans shall be reviewed by the Commissioner and the Commissioning Authority for completeness and verification that the manufacturer-recommended procedures have been completed.
1. The Contractor responsible for the installation and start-up of the equipment is responsible for developing the start-up plan by combining the Pre-Functional Checklist with the manufacturer's detailed start-up and checkout procedures and any required quality assurance testing.
 2. The Contractor shall maintain an updated and annotated copy of the start-up plan that shall be accessible for review by the Commissioner and the Commissioning Authority at periodic intervals.
 3. The completed start-up procedures shall be provided along with the completed Pre-Functional Checklists to the Commissioning Authority prior to the Contractor's certification that the systems are ready for Functional Performance and Integrated Systems Testing.

3.7. FUNCTIONAL PERFORMANCE TESTING

- A. The CxA will provide to the Contractor functional performance tests (FPTs). The Contractor shall review the test procedures, so that proper preparation may occur. The Contractor shall execute the FPT document and prove to The Commissioner's Representative and the Cx Authority that the performance of the Mechanical Systems achieves the performance level identified. Refer to all other specification sections for other systems that may need to be tested. The following systems are to be commissioned but not limited to:
1. HVAC Systems:
 - a. Make up Water Pumps



- b. Expansion Tanks
 - c. Air Separator
 - d. Water Cooled Chillers
 - e. Chilled Water Pumps
 - f. Condensing Water Pumps
 - g. Fans
 - h. Integrated System testing
2. Building Automation And Temperature Control (BATC) System:
- a. Verification of all control functionalities of all systems and equipment
 - b. Verification of all set-points, adjustments, end switches and limits.
 - c. Verification of all operation of all control sequences.
 - d. Verification of all alarms.
 - e. Verification of all system graphics
 - f. Verification of communication interface to other stakeholder's equipment (e.g. local air conditioning units, etc.)
- B. Detailed testing shall be performed on all installed equipment and systems to ensure that operation and performance conform to contract documents. All tests shall be witnessed by the Commissioning Authority. The following testing is required as part of the commissioning process:
1. Verification tests are comprised of a full range of checks and tests to determine that all components, equipment, systems, and interfaces between systems operate in accordance with contract documents. This includes all operating modes, interlocks, control responses, and specific responses to abnormal or emergency conditions.
 2. Functional performance tests (FPT) shall determine if the HVAC system is providing the required cooling and heating services in accordance with the finalized design intent. These tests shall also determine the installed capacity of the cooling and heating equipment, and the individual heat transfer components.

3.2. ROLES AND RESPONSIBILITIES

A. Contractor

1. Assure acceptable representation, with the means and authority to prepare and coordinate execution of the HVAC system commissioning program as described in the contract documents.
2. Attend commissioning meetings scheduled by the CA.
3. Coordinate inclusion of commissioning activities in the construction schedule.
4. Complete Pre-Functional Checklists and manufacturer's pre-startup checklists prior to scheduling pre-testing of the HVAC system.
5. Issue a notice that HVAC pre-testing has been scheduled.
6. Monitor, respond, and remedy deficiencies identified in the Corrective Issue Reports (CIRs) distributed by the CxA in order to expedite corrective actions necessary to achieve design intent.



7. Facilitate resolution of deficiencies that were identified by observations or performance testing.
8. Participate in the Functional Performance Tests as required to achieve design intent.
9. Participate in O&M Instruction as required by project specifications.
10. Include requirements for submittal data, O & M data, and instruction in each purchase order or sub-contract written.
11. Ensure cooperation and participation of the trades such as sheet metal, piping, refrigeration, water treatment, and TAB.
12. Ensure participation of major equipment manufacturers in appropriate instruction and testing activities.
13. Attend Construction Phase coordination meeting scheduled by the Commissioning Authority.
14. Assist the Commissioning Authority in all verification and functional performance tests.
15. Prepare preliminary schedule and include the following tasks that will be executed: mechanical system orientation and inspections, O&M manual submission, instruction sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, TAB, and task completion for use by the Commissioning Authority. Update schedule as appropriate throughout the construction period.
16. Attend initial instruction session.
17. Conduct HVAC system orientation and inspection at the equipment placement completion stage.
18. Update drawings to the record condition to date, and review with the Commissioning Authority.
19. Gather O&M data on all equipment, and assemble in binders as required by DDC General Conditions.
20. Notify the Commissioning Authority a minimum of two weeks in advance, so that witnessing equipment and system start-up and testing can begin.
21. Notify the Commissioning Authority a minimum of two weeks in advance, of the time for start of the TAB work. Attend the initial TAB meeting for review of the TAB procedures.
22. Participate in, and schedule vendors to participate in the instruction sessions.
23. Provide written notification to the Commissioning Authority that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-systems are operating as required.
 - a. HVAC equipment including all fans, air handling units, dehumidification units, ductwork, dampers, terminals, and all contracted equipment.
 - b. Refrigeration equipment, pumping systems and heat rejection equipment.
 - c. Fire stopping in the fire rated construction, including fire and smoke damper installation, caulking, gasketing and sealing of smoke barriers.
 - d. Dedicated smoke control systems including stairway pressurization.
 - e. Non-dedicated systems using the air handling units for smoke control.
 - f. Fire detection and smoke detection devices furnished under other divisions of this specification as they affect the operation of the smoke control systems.
 - g. Building control systems that control mechanical equipment and smoke control systems are functioning.
 - h. Provide a complete set of as-built records to the Commissioning Authority.
24. Submit the TAB procedures to the Commissioning Authority and Commissioner for review and acceptance.



25. Attend the TAB review meeting scheduled by the Commissioning Authority. Be prepared to discuss the procedures that shall be followed in testing, adjusting and balancing the HVAC system.
26. Participate in instruction sessions.
27. At the completion of the TAB work, and submittal of final TAB report, notify the CxA.
28. Participate in verification of the TAB report, which will consist of repeating any selected measurement contained in the TAB report where required by the Commissioning Authority for verification or diagnostic purposes.
29. Review design for controllability with respect to selected manufacturer's equipment;
 - a. Verify proper hardware specifications exist for functional performance required by DDC General Requirements, specifications, and sequence of operation.
 - b. Verify proper safeties and interlocks are included in design.
 - c. Verify proper sizing of control valves and actuators based on design pressure drops. Verify control valve authority to control coil properly.
 - d. Verify proper sizing of control dampers. Verify damper authority to control air stream. Verify proper damper positioning for mixing to prevent stratification. Verify actuator vs. damper sections for smooth operation.
 - e. Verify proper selection of sensor ranges.
 - f. Clarify all questions of operation.
30. Attend initial commissioning coordination meeting scheduled by the CxA.
31. Provide the following submittals to the Commissioning Authority;
 - a. Hardware and software submittals.
 - b. Control panel construction shop drawings.
 - c. Narrative description of each control sequence for each piece of equipment controlled.
 - d. Diagrams showing all control points, sensor locations, point names, actuators, controllers and, where necessary, points of access, superimposed on diagrams of the physical equipment.
 - e. Logic diagrams showing the logic flow of the system.
 - f. A list of all control points, including analog inputs, analog outputs, digital inputs, and digital outputs. Include the values of all parameters for each system point. Provide a separate list for each standalone control unit.
 - g. A complete control language program listing including all software routines employed in operating the control system. Also provide a program write-up, organized in the same manner as the control software. This narrative shall describe the logic flow of the software and the functions of each routine and sub-routine. It should also explain individual math or logic operations that are not clear from reading the software listing.
 - h. Hardware operation and maintenance manuals.
 - i. Application software and project applications code manuals.
32. Verify proper installation and performance of controls / BAS, hardware, and software provided by other trades.
33. Integrate installation and programming schedule with construction and commissioning schedules.
34. Provide thorough instruction to operating personnel on hardware operations and programming, and the application program for the system.
35. Demonstrate system performance to Commissioning Authority including all modes of system operation (i.e. normal, abnormal, emergency, etc.).
36. Provide control system technician for use during system verification and functional performance testing.



37. Provide system modifications as required.
38. Provide support and coordination with TAB scopes of work. Provide all devices, such as portable operator's terminals, for TAB use in completing TAB procedures.
39. Additional trend logs may be required to facilitate the commissioning process.

3.3. STARTUP

- A. The Contractor shall follow the start-up and initial checkout procedures listed in this specification and in DDC General Conditions. Division 23 has start-up responsibility and is required to complete systems and sub-systems so that they are fully functional and meet the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve, lessen this responsibility, or shift that responsibility partially to the Commissioning Agent or The City of New York.
- B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems, or sub-systems at the discretion of the CxA and the Contractor. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all Pre-Functional Checklists as soon as possible.

3.4. COMMISSIONING STATUS TRACKING

- A. The Contractor shall verify that the Tag designation as well as the number (count) of each unit listed is correct against those contained within the initial Contract Documents to ensure that the Contractor's Bid documents contain all of the equipment required to be commissioned.

END OF SECTION 23 90 00



**SECTION 26 02 70
TEMPORARY LIGHTING AND POWER**

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 WORK INCLUDED

- A. Temporary Lighting and Power.

1.3 SUBMITTALS

- A. None required.

1.4 QUALITY ASSURANCE

- A. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Utility company standards.
 2. Occupational Safety and Health Act.
 3. UL 1088
 4. NFPA 70 Article 590

PART 2 - PRODUCTS

2.1 NOT USED.

PART 3 - EXECUTION

- 3.1 Contractor shall make all necessary arrangements with the City of New York for the new installation of temporary lighting and power services tailored for this project and the setting of temporary meters in accordance with the Utility Company's requirements. The Contractor shall pay for the installation and maintenance of all temporary light and power wiring, including, but not limited to conduits, wire, switches, fuse boxes, receptacles, distribution panel boards, fused disconnect switches, ground fault interruption equipment, fixtures, lamps, fuses and any other incidental material and/or equipment required to provide



sufficient illumination and power, as required by the State Labor Board and OSHA for all areas of the site where work will be performed by this Contractor, his subcontractors, or any other contractors.

- 3.2 Furnish and install one (1) complete set of work lamps, including those required for trailers and/or temporary offices. Contractor shall also furnish and install one (1) complete set of fuses for temporary light and power services, as required. The replacement of burned out and broken lamps shall be carried out by those using the trailers and/or offices.
- 3.3 Rubber covered trailers, each 40' long, having plugs, sockets and locked type guards, shall be supplied by this contractor for use by other contractors, as required.
- 3.4 Temporary power circuits and outlets, etc. shall be provided in accordance with the power requirements of the various horsepower ratings of the equipment to be installed under all contracts and for temporary motors, elevator, etc. Temporary power required for motor operated tools and appliances to be used by various contractors in construction work, and not to be a part of the permanent equipment shall be provided.
- 3.5 Temporary lighting shall be removed immediately upon the completion of construction or purpose for which the wiring was installed. This Contractor shall replace and repair all damage to the permanent systems, as required, replacing all damaged parts. All temporary wiring not only must be disconnected but also removed from the building, structure, or other location of installation.
- 3.6 At no time shall the temporary electrical equipment installation be used for permanent lighting and power services.

END OF SECTION 26 02 70



**SECTION 26 02 80
EQUIPMENT CONNECTIONS 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].

1.2 WORK INCLUDED

- A. Equipment to receive final connections shall include but is not limited to the following:
1. Motors and Equipment.
 2. Dampers, ALDs and VAVs.
 3. City of New York Furnished Equipment.

1.3 SUBMITTALS

- A. None required.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. American National Standard Safety Code for Elevators Dumbwaiters and Moving Walks (ANSI A17.1).
 2. State Elevator Code.
 3. NFPA-72 (NEC)

PART 2 - PRODUCTS

- 2.1** Only those products listed in this Division shall be employed.



PART 3 - EXECUTION

3.1 EXAMINATION OF DOCUMENTS

- A. Refer to DDC General Conditions
- B. The contractor must review all contract documents related to the equipment requiring electrical connections. By acceptance of this contract the contractor acknowledges all the electrical connections required and will be responsible for providing such electrical connections.
- C. Connections shall be made in accordance with the manufacturers' recommendations and reviewed shop drawings.

3.2 MOTORS AND EQUIPMENT

- A. Connections for and coordination of motors and equipment requiring electrical connections shall be included:
 - 1. Install motor controllers and disconnect switches for each motor and each piece of equipment. The contractor must refer to all other trades' design drawings for location and power requirements of all motors and other equipment.
 - 2. Verify that the motor rotation is correct and reconnect if necessary.
 - 3. Provide separate ground conductor in flexible metal conduit so as to provide an electrically continuous ground path. Ground all equipment.
 - 4. Provide motor branch circuit conductors and connections to each individual motor controller and from each controller to the motor through an approved disconnect switch. Make final connection in a minimum of 24-inch length of liquid-tight, flexible, metal conduit.
 - 5. Provide all necessary wiring and connections for interlocking, remote and automatic controls. Installation of equipment and wiring shall be in compliance with the manufacturer's recommendations.
 - 6. Where equipment is fed from a branch circuit routed in or under the slab, terminate branch circuit at a junction box on 2-foot rigid conduit stub-up and make final connection to equipment in liquid-tight, flexible, metal conduit. Provide suitable knee brace on conduit stub-up.
 - 7. Where equipment is fed from overhead, support conduit feeder descending from ceiling on flanged floor fitting with conduit type fitting connecting to a motor with 24-inch minimum of liquid-tight flexible metal conduit.
 - 8. Where nameplate on equipment indicates fuse protection, the disconnecting means shall be equipped with time delay fuses.
 - 9. Where condensate pumps or other equipment is installed above hung ceilings such equipment shall not be connected via cord & plug and must be hardwired using permanent wiring methods.



3.3 NEW YORK CITY FURNISHED EQUIPMENT

- A. The requirements for equipment furnished by the City of New York for installation by this Contractor shall include but is not limited to the following:
1. The coordination of the proper delivery scheduling of such equipment.
 2. The receiving and unloading of such equipment at the property line.
 3. The inspection of such equipment for damage, defacement, corrosion, missing components, etc., at the job site. All deficiencies shall be recorded. Deficiencies occurring after inspection shall be corrected by this Contractor at his cost.
 4. The safe handling at secure storage of such equipment from unloading to the time of permanent installation.
 5. The completion of field make-up of internal wiring as required.
 6. The lamping of equipment, with new lamps.
 7. The installation of accessories on such equipment.
 8. The installation of such equipment including the transportation of the equipment to the installation area, and the installation of all supports, fasteners, canopies, extensions, etc. required to insure safe support and adaptation to the finished structural, electrical and architectural conditions.
 9. The final connections and grounding to the building electrical system including all necessary labor and materials including junction box extensions, lug change outs, wiring, conduit, etc.
 10. The testing of such equipment in its final location.

END OF SECTION 26 02 80



**Department of
Design and
Construction**

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**SECTION 26 05 19
600 VOLT WIRE AND CABLE**

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 WORK INCLUDED

- A. Wire and Cable.
- B. Connectors and Terminations.
- C. Electrical Tape.

1.3 SUBMITTALS

- A. Product Data: for each type of conductor, connectors and termination assemblies.
- B. Field Test Reports.

1.4 QUALITY ASSURANCE

- A. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. Underwriters' Laboratories labeling of all insulations and jackets.
 - 2. NEC
 - 3. NRTL
 - 4. Connections
 - a. 486A & 486B.



PART 2 - PRODUCTS

2.1 WIRE AND CABLE

A. General

1. Provide wire and cable with a minimum insulating rating of 600 volts, except for wire used in 50 volts or below applications. For control or signal systems, use 300 volt minimum or 600 volt where permitted to be incorporated with other wiring systems.

B. Conductors

1. Provide factory fabricated electrical grade, annealed copper conductors and fabricated in accordance with ASTM B3 standards.

C. Stranding and Number of Conductors

1. No. 12 and 10 AWG conductors shall be solid.
2. Conductors larger than No. 10 AWG shall be stranded in accordance with ASTM Class B stranding designations.
3. Control wires shall be stranded in accordance with ASTM Class B stranding designations.

D. Insulated Single Conductors

1. Type THW or THWN - Thermoplastic insulation suitable for use in wet locations up to 75°C.

E. Multi-Conductor Control and Supervisory Control Cables

1. Size No. 16 AWG, minimum.
2. Suitable for direct burial, open air, duct or conduit installation.
3. Temperature Rating: 75°C Wet or Dry.
4. Uninsulated ground wire.
5. Cross-linked polyethylene conductor insulation; thickness satisfying requirements of ICEA.
6. Flame-retardant overall polyvinyl jacket satisfying the requirements of ICEA.
7. Individual conductors bound together with overall binder tape prior to jacket application.
8. Individual conductors rating of 300 volts (instead of 600 volts) for cables designated Supervisory Control Cable.



9. Factory color coded.

F. Manufacturers

1. Products by any manufacturer meeting the performance requirements specified herein may be utilized the following manufacturers:
 - a. American Insulated Wire Corp.
 - b. General Cable Corporation
 - c. Southwire Company
 - d. Belden
 - e. Pyrotenax/Tyco
 - f. Or approved equal

2.2 CONNECTORS

A. Wire No. 10 AWG and Smaller

1. Hand-Applied:
 - a. Coiled tapered, spring wound devices with a conducting corrosion-resistant coating over the spring steel and a plastic cover and skirt providing full insulation for splice and wired ends. Screw connector on by hand.
2. Tool-Applied:
 - a. Steel cap, with conduction and corrosion resistant metallic plating, open at both ends, fitted around the twisted ends of the wire and compressed or crimped by means of a special die designed for the purpose. Specifically fitted plastic or rubber insulating cover wrap over each connector.
 - b. Hydraulic tool of same manufacturer as lug which shall emboss on the connector the proper die number for inspection.

B. Manufacturers

1. Hubbell
2. OZ/Gedney
3. Thomas & Betts.



4. Or approved equal.

2.3 INSULATING TAPE

- A. Provide vinyl plastic tape that meets the requirements of UL 510 and has the following characteristics:
 1. 8.5 mil minimum thickness.
 2. ASTM D-3005 Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape – Type 1.
 3. Rated 600 volts and 105°C, suitable for indoor and outdoor applications.
 4. Retains flexibility, adhesion, and applicable at temperature ranges from 0 through 100°F without loss of physical or electrical properties.
 5. Resistant to abrasion, moisture, alkalis, acid, corrosion, and sunlight.
 6. Manufacturers
 - a. 3M “Scotch Super 88”.
 - b. Power First
 - c. Shurtape
 - d. Or approved equal

2.4 WIRE PULLING LUBRICANT

- A. Provide wire pulling lubricant that is compatible with the conductor insulation, has a maximum coefficient of friction of 0.055, and is stable up to a temperature of 180°F. For cold weather installations, provide wire pulling lubricant suitable for conduit temperature.
- B. Compatibility with conductor insulation shall be determined in accordance with IEEE Std 1210 Standard Tests for Determining Compatibility of Cable-Pulling Lubricants with Wire and Cable.

PART 3 - EXECUTION

3.1 WIRE AND CABLE

- A. Refer to DDC General Conditions.
- B. Provide a complete system of conductors in a raceway system. Mount wiring through a specified raceway, regardless of voltage application.



- C. Contract Drawings do not indicate size of branch circuit wiring; use No. 12 AWG as a minimum. For 20 ampere branch circuits whose length from the panel to the furthest outlet exceeds 100 feet for 120-volt circuits or 150 feet for 277-volt circuits, use No. 10 AWG or larger for the entire branch circuit installation.
- D. Provide dedicated neutral conductor and equipment ground conductor for each branch circuit serving television broadcast equipment, audio visual equipment and sound system equipment. If isolated grounds are shown as required, they shall also be dedicated.
- E. Provide dedicated neutral conductor for each dimmer branch circuit and for each ground fault interrupter branch circuits.
- F. Provide a shared neutral conductor, one (1) standard wire size greater than the branch circuit phase conductor, for all branch circuits to receptacle loads.
- G. Conductor Types
 - 1. Type THW or THWN - Use for lighting, receptacle and motor circuits and for panel and equipment feeders.
- H. Do not install wire in incomplete conduit runs nor until after concrete work and plastering is completed and moisture is swabbed from the conduits. Eliminate splices wherever possible. Where necessary, splice in readily accessible pull, junction, or outlet box.
- I. Provide cable supports for all vertical risers where required by the NEC not to exceed the following for copper conductors. Modify if aluminum conductors are used to meet the NEC requirements:

Copper Minimum Conductor Size	Vertical Supports
No. 18 AWG to No. 8 AWG	100 ft.
No. 6 AWG to No. 0 AWG	100 ft.
No. 00 AWG to No. 0000 AWG	80 ft.
211,601 CM to 350,000 CM	60 ft.
350,001 CM to 500,000 CM	50 ft.
500,001 CM to 750,000 CM	40 ft.

- J. Flashover or insulation value of joints to be equal to that of the conductor. Use Underwriters' Laboratories listed connectors rated at 600 volts for general use and 1,000 volts for use between ballasts and lamps of gaseous discharge lighting fixtures.
- K. Use terminating fittings, connectors, etc., of a type suitable for the specified cable furnished. Make bends in cable at termination prior to installing compression device. Make fittings tight.



L. Color Coding

1. Provide consistent color coding of all AC feeders, sub-feeders, motor circuits and the likes as follows:

	208Y/120 Volts Code	480Y/277 Volts Code
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Grey
Ground	Green	Green
Isolated Ground	Green/Yellow Striped	N/A

2. Factory color code wire No. 2 AWG and smaller. Where color coding cannot be readily provided because of limited quantities involved, provide either of the following:
 - a. Plastic adhesive tape applied spirally and half-lapped over exposed portions of conductors within manholes, boxes, and similar enclosures. Tape shall be 3/4" minimum.
 - b. Colored tubing cut and inserted over ends of wire prior to installing terminals.
 - c. Provide black conductor insulation where colored tape is used to for color coding.
3. Wire No. 1 AWG and larger may be color coded by color taping of the entire length of the exposed ends.
4. Color code wiring for control systems installed in conjunction with mechanical and/or miscellaneous equipment in accordance with the wiring diagrams furnished with the equipment.
5. DC power system conductors shall be color coded; Positive – Red; Negative – Black.

3.2 INSTALLATION

A. General

1. Provide tools, equipment and materials to pull all wire and cable into place and to make required splices and termination.

B. Wire and Cable in Conduit, Duct or Wireway

1. Utilize roller bearing swivel to prevent twisting of cables entering the conduit or duct.
2. Take precautions to avoid entrance of dirt and water into the conduit and ducts.



3. Clean conduits and ducts to remove any pulling compound prior to pulling of cables.
4. Do not damage conductor insulation, braid jacket or sheath during installation. Any damaged conductors shall be replaced immediately.
5. Do not bend conductors to less than the manufacturer's recommended radius.
6. Lubricate cable if required for pulling.
7. Make splices only in pull boxes, junction boxes and outlet boxes.
8. Utilize cable reels on jacks for pulling through pull boxes, ducts and conduits so bends will not be excessive and conductors will not touch sharp edges; use feeding tube where required.
9. For large diameter cables, utilize properly sized pulling grips (endless woven basket two to four feet long of ductile steel).
10. Do not exceed maximum recommended pulling tension of wire and cable.
11. Fire seal around cables penetrating fire rated barriers.
12. Provide proper supports of the cables installed in cable support boxes, in accordance with the NEC.

C. Splices, Terminations and Connections

1. **General:** Except where lugs are furnished with the equipment, provide terminals and connectors suitable for the quantity, conductor size and direction of entry (top or bottom).
2. **Insulated Flanged Terminals:** Provide for connection of conductors No. 12 AWG and smaller to device terminals; do not exceed three (3) terminals at any single connections.
3. **Circumferential Compression Type Connectors or Cytelok spring compression terminator (Provide for Splices and Connections No. 6 AWG and larger):**
 - a. Use for incoming and outgoing cable connections at enclosures and for ground connections.
 - b. Use manufacturer's approved tool and correct size hex head which embosses die number on the connector or lug.
 - c. Make crimped indentations parallel with insulation putty.
 - d. Fill voids and irregularities with insulation putty.
 - e. Cover neatly with four (4) layers of vinyl plastic tape except where insulated covers are permitted; half-lap tape in two (2) directions.
 - f. Use spring-held bakelite covers over splices or taps only with the approval by the Commissioner.



D. Wire Marker Identification Labels

1. Utilize labels for those circuits where individual conductor identity is indicated on the Contract Drawings.
2. Apply to wires and cables at terminals and in all pull, junction and splice boxes.
3. Do not cut and splice multi-conductor control cable for purpose of labeling.
4. Clean surfaces before applying labels.

3.3 FIELD TESTING

- A. Test system wiring for continuity, grounds and short circuits prior to connection of any equipment.
- B. Test final equipment connections for continuity of grounds and short circuits.
- C. Insulation Resistance of Feeders and Subfeeders
 1. Test with megger for insulation resistance. Insulation resistance to comply with ICEA values.
 2. Correct faults and sections with faulty insulation.
- D. Remove and replace defective conductors and retest.

END OF SECTION 26 05 19



**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 WORK INCLUDED

- A. Rigid Steel Conduit.
- B. Rigid Aluminum Conduit.
- C. Electrical Metallic Tubing (EMT).
- D. Armor Clad (AC) Cable.
- E. Flexible Metal Conduit.
- F. Liquid-Tight Flexible Metal Conduit.
- G. Rigid Non-Metallic Conduit.
- H. Conduit Fittings.
- I. Wireways and Auxiliary Gutters.
- J. Outlet, Junction, Cable Support Boxes and Pull Boxes.
- K. Identification Labels.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions
- B. Shop Drawings
 - 1. Full erection drawings where wireways and/or auxiliary gutters are employed. Drawings shall include plan views, elevations, size of wireways, type and quantity of conductors proposed to be installed therein, etc.



2. Indicate duct banks on multi-trade coordinated shop drawings.
3. Indicate all cable support boxes on all submittals.

C. Product Data

1. Submit dimensioned detailed drawings for boxes exceeding 24 inches in any one (1) dimension.
2. Submit manufacturer's catalog data for all raceways, fittings, enclosures, cabinets, floor boxes and accessories.

1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions.

B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. Rigid Steel and PVC Coated Rigid Galvanized Steel Conduit:
 - a. U.L. Standard 6.
 - b. ANSI C80-1 Conduit.
 - c. ANSI C80.4 Fittings.
 - d. NEMA RN-1 2005.
2. Rigid Aluminum Conduit:
 - a. ANSI C80-5.
3. Electrical Metallic Tubing:
 - a. U.L. Standard 797.
 - b. ANSI C80.3.
4. Armor Clad Cable:
 - a. U.L. Standard 4.
 - b. NEC Article 333.
5. Flexible Metal Conduit:
 - a. U.L. Standard 1.



6. Liquid-Tight Flexible Metal Conduit:
 - a. U.L. Standard 360.
 - b. UL514B Conduit, Tubing and Cable Fittings.
 - c. UL 1660 Liquid Tight Flexible Nonmetallic Conduit.
7. Rigid Non-Metallic Conduit:
 - a. U.L. Standard 651.
 - b. ANSI Standard F512.
 - c. NEMA Standard TC-2.
 - d. Corps of Engineers Specification CE-303:01.
8. Wireways and Auxiliary Gutters:
 - a. U.L. Standard UL-870.

PART 2 - PRODUCTS

2.1 RACEWAYS

A. Rigid Steel Conduit

1. Rigid steel conduit shall be heavy wall, galvanized type.

B. PVC Coated Galvanized Rigid Steel Conduit

1. PVC coated galvanized rigid steel conduit shall fully comply with all sections of UL6, NEMA RN-1 2005 and ANSI C80.1 without exception. PVC coated galvanized conduit shall have hot dipped galvanized threads. The external PVC coating shall be a nominal 40 mils of external PVC coating and 2 mils of internal urethane coating. The PVC coating shall be applied by the same manufacturer of the hot dipped galvanized rigid steel conduit.
2. The galvanized coating of the hot dipped galvanized conduit shall not be disturbed in any fashion prior to the application of the PVC coating in accordance to UL6 and NEMA RN-1 2005 3.1.1.
3. The PVC coated galvanized rigid steel conduit shall comply with all UL listings, providing the hot dipped galvanized coating as the primary means of protection for the conduit and the PVC coating shall be listed as a secondary means of corrosion protection as required by UL6 and NEMA RN-1 2005.



4. All PVC coated galvanized conduit bodies and fittings shall also be manufactured with 40 mils of PVC coating and 2 mils of internal urethane. All conduit bodies shall be NEMA 4X Rated with encapsulated stainless steel screws.
 5. Manufacturers
 - a. Calbond
 - b. Thomas & Betts – OCAL
 - c. Rob Roy Industries – Plasti Bond
 - d. Or approved equal.
- C. Rigid Aluminum Conduit
1. Rigid aluminum conduit shall be heavy wall type.
 2. Manufacturers
 - a. Allied Tube & Conduit
 - b. Wheatland Tube
 - c. American Conduit
 - d. Or approved equal
- D. Electrical Metallic Tubing
1. Continuous, seamless tubing galvanized or sheradized on exterior, coated on interior with smooth hard finish of lacquer, varnish or enamel.
 2. Manufacturers
 - a. Republic Conduit
 - b. Wheatland Tube
 - c. Western Tube
 - d. Or approved equal.
- E. Armor Clad Cable
1. Conductors rated at 90°C as specified elsewhere herein, uninsulated ground wire, moisture and fungi resistant fillers, and an interlocking steel armor shield.



2. Manufacturers
 - a. AFC Cable
 - b. Southwire
 - c. Allied
 - d. Or approved equal
- F. Flexible Metal Conduit
 1. Single strip, continuous, flexible interlocked double-wrapped steel, galvanized inside and outside forming smooth internal wiring channel.
- G. Liquid-Tight Flexible Metal Conduit
 1. Liquid Tight flexible metal conduit shall have external PVC jacket and shall be UV stable and shall be machine tool grey in color. Internal construction shall be light-weight aluminum core.
 2. Manufacturers
 - a. OZ Gedney / A Division of Emerson
 - b. Hubbell Raco
 - c. Thomas & Betts
 - d. Or approved equal
- H. Rigid Non-Metallic Conduit
 1. Composed of polyvinyl chloride suitable for 90°C.
 2. Raceway, fittings and cement must be produced by same manufacturer who must have had minimum of three (3) years' experience in manufacturing the products.
 3. Materials must have tensile strength of 7,000-7,200 psi at 73.4°F, flexural strength of 12,000 psi and compressive strength of 9,000 psi.
 4. Manufacturers
 - a. Allied Tube
 - b. Carlon
 - c. Wheatland Tube



- d. Or approved equal.

2.2 CONDUIT FITTINGS

A. Rigid Steel Conduit

- 1. Threaded type fittings.

B. Rigid Aluminum Conduit

- 1. Threaded type fittings.

C. Conduit Expansion Joints and Deflection Fittings, Rigid Galvanized Steel Conduit. Weather tight, internal ground, expansion joint for galvanized rigid steel conduit.

- 1. Manufacturers

- a. Crouse Hinds / A Division of Cooper Industries – Type XJG & XD
- b. OZ Gedney / A Division of Emerson – Type AX & DX
- c. Thomas & Betts – Type XJG & XD
- d. Or approved equal.

D. Electrical Metallic Tubing

- 1. 2½-inch in size and larger may be set screw type. 2-inch in size and smaller, steel compression gland.
- 2. In slab or concrete work, concrete-tight fittings.

E. Armor Clad Cable

- 1. Malleable iron or die-cast zinc with insulating bushing.

F. Flexible Metal Conduit

- 1. Compression-type metal fittings.

G. Liquid-Tight Flexible Metal Conduit

- 1. Body, gland and lock nut shall be steel of malleable iron. Ground cone shall be steel, sealing ring and insulator shall be blue molded thermoplastic rated at 150°C (221°F) maximum.

H. Rigid Non-Metallic Conduit

- 1. Solvent cemented type.



2.3 WIREWAYS AND AUXILIARY GUTTERS

- A. Wireways and gutters shall be of sizes and shapes indicated on the Contract Documents and as required to meet the field conditions. Equipment shall be sheet metal, with enamel finish, NEMA 250 rated.
- B. Provide all necessary elbows, tees, connectors, adaptors, etc.
- C. Provide hinged cover secured with captive screws.
- D. Wire retainers shall be provided not less than twelve (12) inches on center.
- E. Manufacturers
 - 1. Square D
 - 2. Wiremold/Legrand
 - 3. Hubbell
 - 4. Or approved equal.

2.4 OUTLET, JUNCTION AND PULL BOXES

- A. Cast Type Conduit Boxes, Outlet Bodies, and Fittings
 - 1. For rigid steel conduit, ferrous alloy box with inside threaded hubs.
 - 2. For rigid aluminum conduit, aluminum box with inside threaded hubs.
 - 3. For electrical metallic tubing, ferrous alloy box with compression or inside threaded hubs with adapter.
 - 4. Covers: Cast or sheet metal unless otherwise required.
 - 5. Tapered threads for hubs.
- B. Galvanized Pressed Steel Outlet Boxes
 - 1. General: Pressed steel, galvanized or cadmium-plated, minimum of 4" octagonal or square with galvanized cover or extension ring as required.
 - 2. Concrete Box: 4" octagon with removable backplate and 3/8" fixture stud, if required. Depth of box shall allow for a minimum of 1" of concrete to be poured above the backplate.
 - 3. Switch and Receptacle Box, Indoors: Nominal 4" square, 1/2" or 2-1/8" deep as required, with raised cover unless otherwise indicated on the Contract Documents.
 - 4. Lighting Fixture Box:



- a. 4" octagon with 3/8" fixture stud.
 - b. For suspended ceiling work, 4" octagon with removable backplate where required, and two (2) parallel bars for securing to cross-furring channels and extend flexible metal conduit to each fixture.
- C. Sheet Steel Boxes Indoors
1. No. 12 USS gauge sheet steel for boxes with a maximum side less than 40 inches, and a maximum area not exceeding 1,000 square inches; riveted or welded 3/4 inch flanges at exterior corners.
 2. No. 10 USS gauge sheet steel for boxes with a maximum side 40 to 60 inches, and a maximum area 1,000 to 1,500 square inches; riveted or welded 3/4 inch flanges at exterior corners.
 3. No. 10 USS gauge sheet steel riveted or welded to 1½" by 1½" by ¼" welded angle iron framework for boxes with a maximum side exceeding 60 inches and more than 1,500 square inches in area.
 4. Covers:
 - a. Same gauge steel as the box.
 - b. Subdivided single covers so no section of the cover exceeds 50 pounds.
 - c. Machine bolts, machine screws threaded into tapped holes or sheet metal screws as required; maximum spacing of 12 inches.
 5. Paint: Rust inhibiting primer; ANSI No. 61 light gray finish coat.
- D. Pull and Splice Boxes, Outdoors
1. Aluminum reinforced, with removable covers secured by stainless steel machine screws.
- E. Junction Box, Sidewalk Type
1. Cast iron, hot-dipped galvanized with threaded conduit entrance hubs, flanged, reinforced checkered cover, gasketed with pry bar slots and countersunk stainless steel screws.
- F. Manufacturers:
1. Cooper Industries
 2. Appleton Electric Company / A Division of Emerson
 3. Erickson Electrical Equipment Co.
 4. Hoffman



5. Hubbell / RACO
6. OZ Gedney / A Division of Emerson
7. Thomas & Betts / Steel City
8. Or approved equal.

G. Floor Boxes

1. General:

- a. Class I, UL 514B Rated watertight, normal depth cast iron construction Type I, fully adjustable, for use in concrete.
- b. Single Gang: Round type.
- c. Multiple Gang or Combination: Rectangular type: partitions for separating power from communication sections.

2. Floor Box Covers:

- a. Rugged construction, impervious to cleaning detergents.
- b. Compatible with floor covering.
- c. Finish as selected by the Commissioner. Satin Aluminum metallic finish.
- d. Providing continuous ground path to the box.
- e. Cover plates shall accept duplex power receptacles and communication devices to match the Contract Documents.
- f. All cover plates shall be equipped with flip up lids.

3. Manufacturers:

- a. Single or Double Gang for duplex receptacle and/or communication devices: Round with four (4) 1 inch hubs and single flush or double cover.
 - 1) Hubbell
 - 2) Thomas & Betts – Steel City
 - 3) Wiremold/Legrand
 - 4) Or approved equal.



- b. Single Gang for Communication devices: Round with four (4) 1¼" hubs and single flush cover.
 - 1) Hubbell
 - 2) Thomas & Betts – Steel City.
 - 3) Wiremold/Legrand
 - 4) Or approved equal.

- c. Multi-gang with Interior Partitions and ¾ Inch Hubs:
 - 1) Hubbell
 - 2) Thomas & Betts – Steel City
 - 3) Wiremold/Legrand
 - 4) Or approved equal.

- d. Single Gang Rectangular Covers for Multi-Gang Boxes:
 - 1) Hubbell
 - 2) Thomas & Betts - Steel City
 - 3) Wiremold/Legrand
 - 4) Or approved equal.

- e. Dual service round floor box with ¾" and 1½" conduit hubs:
 - 1) Hubbell
 - 2) Thomas & Betts – Steel City
 - 3) Wiremold/Legrand
 - 4) Or approved equal.

2.5 IDENTIFICATION LABELS

- A. Plasticized Cloth
 - 1. Non-conductive.
 - 2. Waterproof.



3. Capable of withstanding continuous temperatures of 235°F and intermittent temperatures to 300°F.
 4. Overcoating for protection against oil, solvents, chemicals, moisture, abrasion and dirt.
- B. Heavy, thermo-resistant industrial grade adhesive for adhesion of label to any surface without curling, peeling, or falling off.
- C. Legends: Sharp, bold-face, two (2) inch black letters on "Alert" orange background.
- D. Label Designations, Nominal System Voltages
1. 208 volts
 2. 240 volts
 3. 460 volts
 4. 480 volts
 5. 2,400 volts
 6. 4,160 volts
 7. 12,400 volts
 8. 13,200 volts
 9. 13,800 volts
- E. Manufacturers
1. W.H. Brady Company
 2. Thomas & Betts Corporation
 3. DYMO
 4. Or approved equal.



PART 3 - EXECUTION

3.1 APPLICATION OF RACEWAYS

- A. Refer to DDC General Conditions
- B. The following applications must be adhered to. Raceways not conforming to this listing must be removed and replaced with specified material at no additional expense to the City of New York.

Raceway Types	Applications
Rigid Steel Conduit	Where exposed to mechanical injury, where specifically required; indoors where exposed to moisture; and for all circuits in excess of 600 volts. Outdoor locations, sump and ejector pits, elevator pits, loading docks, garage, window washing equipment, and service feeders. Fire pump feeders concrete encased with 2" of concrete when Mineral Insulated (MI) Cable is not used.
PVC Coated Rigid Galvanized Steel Conduit	Where exposed to extreme outdoor and indoor corrosion and or weather conditions: Bridges, Water Treatment, Food and Beverage processing. Stub out of Concrete applications. In applications where two (2) UL Listed Layers of Corrosion protection is required and Hot Dipped Galvanized Conduit as Primary Protection is listed PVC Coating is listed as Primary Corrosion is also UL Listed.
Rigid Aluminum Conduit	For 400 Hz feeders and branch circuits. Outdoor locations.
E.M.T.	Use in every instance except where another material is not specified.
Armor Clad Cable	Lighting and receptacle branch circuits concealed in dry hollow spaces of a building. May not be used in corridors, places of assembly, or where prohibited by Code.
Flexible Metal Conduit	Use in dry areas for connections to lighting fixtures in hung ceilings, connections to equipment installed in removable panels of hung ceilings; at bus duct takeoffs; at all transformer or equipment raceway connections where sound and vibration isolation is



Raceway Types	Applications
	required.
Liquid-Tight Flexible Metal Conduit	Use in areas subject to moisture where flexible metal conduit is unacceptable, at connections to all motors, and all raised floor areas.
Rigid Non-Metallic Conduit	Schedule 40 - Where raceways are in a slab below grade levels; for raceway duct banks. Schedule 80 - For underground raceways outside of the building which are not encased in concrete.
Wireways and Auxiliary Gutters	Where indicated on the Contract Documents and as otherwise specifically required.

3.2 RACEWAY SYSTEMS IN GENERAL

- A. Provide separate raceways for all wiring systems, including security, data, paging, low voltage et al. All 480Y/277 volt wiring must be kept independent of 208Y/120 volt wiring. Emergency system wiring must be kept independent of the normal system wiring. Provide grounding conductor within all circuits. Minimum size 3/4-inch for home runs and 1-inch minimum for power distribution. Wiring of each type and system must be installed in separate raceways.
- B. Install capped bushings on the raceways as soon as they are installed and remove only when cables are pulled. Securely tie embedded raceway in place prior to embedment. Raceways installed below or in floor slabs must extend a minimum of four (4) inches above the finished slab to the first connector. Lay out work in advance to avoid excessive concentrations of multiple raceway runs.
- C. Locate raceways so that the strength of structural members are unaffected and they do not conflict with services of other trades. Install 1-inch or larger raceways in or through structural members (beams, slabs, etc.) only when and in a manner accepted by the Commissioner. Draw up couplings and fittings full and tight. Protect exposed threads from corrosion with one (1) coat of zinc chromate after installation.
- D. Provide raceway installation (with appropriate seal-offs, explosion-proof fittings, etc.) in special occupancy area, as required. Provide conduit seal-offs where portions of the interior raceway system pass through walls, ceiling or floors which separate adjacent rooms having substantially different maintained temperatures, as in refrigeration or cold storage rooms.
- E. Provide labeled pull wire in all spare or empty raceways. Allow five (5) feet of slack at each end and in each pull box. Tag both ends of the cable denoting opposite and termination location with black india ink on flameproof linen tag.
- F. Above Grade: Defined as area above the finished grade for the building exterior and above the top surface of any slabs (or other concrete work) on grade for the building interior.



1. Install concealed except at surface cabinets and for motor and equipment connections in electrical and mechanical rooms. Install a minimum of six (6) inches from flues, steam pipes, or other heated lines. Provide flashing and counter-flashing for waterproofing of raceways, outlets, fittings, etc., which penetrate the roof. Route exposed raceways parallel or perpendicular to the building lines with right-angle turns and symmetrical bends. Run concealed raceways in direct line and, where possible, with long sweep bends and offsets. Maximum length of six (6) feet for flexible metal conduit. Each section of flexible metal conduit shall contain bonding ground connector bonded at each end and sized as required. Provide connectors with insulating bushings. Provide sleeves in the forms for new concrete walls, floor slabs and partitions for passage of the raceways. Waterproof sleeved raceways where required.
 2. Provide raceway expansion joints for exposed and concealed raceways with necessary bonding ground conductor at building expansion joints and between buildings or structures and where required to compensate for raceway or building thermal expansion and contraction. Provide expansion fittings every 200 feet of conduit.
 3. Provide one (1) empty 3/4-inch raceway for each three (3) spare unused poles or spaces of each flush-mounted panelboard. Terminate empty 3/4 inch conduits in a junction box, which after completion is accessible to facilitate future branch circuit extension. Provide pull lines in each raceway.
- G. Below Grade: Defined as area below the finished grade for the building exterior and below or within the bottom floor slab for the building interior. Below grade raceways shall comply with the following:
1. Extend below-grade raceways two (2) inches minimum above the floor or equipment foundation. Install exterior underground conduits 24 inches minimum below the finished grade. Do not penetrate waterproof membranes unless proper seal is provided.
 2. Protect metallic raceway in earth or apply with two (2) coats of asphalt base paint. Touch up abrasions and wrench marks after conduit is in place.
 3. In lieu of the above, protect raceways with a minimum of 20 mil tape appropriate for the purpose, overlapped a minimum of one-half tape width.
- H. Duct Banks
1. Provide duct banks and concrete encasements for both interior and exterior work as indicated on the Contract Documents, for all circuits in excess of 600 volts, for all utility company feeders, and as otherwise indicated.
 2. Reinforce duct banks with steel rebar where such duct banks are positioned beneath roads and parking areas.
 3. Concrete minimum $f_c = 3,000$ pounds per square inch.



4. At building walls and at manhole walls, provide raceway of rigid steel, one size larger than the specified raceway, for five (5) feet. Pitch conduit away from the building at every point where the duct bank enters the building or equipment.
5. Support all raceways installed in the duct banks every five (5) feet to assure correct alignment.
6. Terminate raceways with flared bells to enable ease of pulling cable and to eliminate stress on the cable. Free bells and raceway terminations of burrs and rough edges. Mandrel all raceways before the installation of any conductors.
7. Provide concrete markers at grade where duct banks are stubbed out for future use.
8. Install utility duct banks not less than 36 inches below grade to the top elevation.
9. Employ red dye inhibiting agents in the concrete mix for power duct banks.
10. Provide yellow vinyl tracer ribbon twelve (12") inches above each duct bank buried in the backfill.

I. Fire Pump Raceways

1. Encase all raceways for the fire pumps in a minimum 2" of concrete. Concrete shall have a red dye.

J. Install no raceway in the concrete slab except with the permission of the Commissioner. Maximum conduit sizes embedded in structural concrete slabs:

Raceway Size	Min. Thickness of Concrete Slab
3/4 in.	4½ in.
1 in.	5 in.

1. Do not install raceways 1¼ inch size and larger in structural concrete slabs.
2. In no case will the installation of raceways be permitted to interfere with proper placement of principal reinforcement.
3. Place raceways in the structural slabs between the upper and lower layers of reinforcing steel. Careful bending of the conduits is required.
4. Space the raceways embedded in concrete slabs not less than eight (8) inches on centers and as widely spaced as possible where they converge at panels or junction boxes.
5. Install raceways running parallel to slabs supports, such as beams, columns and structural walls, not less than 12 inches from such supporting elements.



6. Secure saddle supports for conduit, outlet boxes, junction boxes, inserts, etc. with suitable adhesives during concrete pour of the slab to prevent displacement.
- K. Rigid Non-Metallic Raceway
1. All joints shall be made by solvent cementing method using material recommended by the raceway manufacturer. Clean components prior to assembly. Supply fittings, cement and conduit shall be by the same manufacturer.
 2. Square raceway cutoffs made by handsaw or other appropriate means which does not deform the conduit. Ream raceway prior to solvent cementing to couplings, adaptors, or fittings.
 3. Ground electrical devices served by rigid non-metallic raceways by means of a ground conductor pulled in the raceway.
 4. Use male box adapters for all box or raceway fittings to terminate rigid non-metallic raceways.
 5. Where separable terminations are required, make using rigid non-metallic threaded adapters with locknuts or bushings. If such terminations must be watertight, install "O" rings.
 6. Make bends by methods that do not deform or damage the conduit. Radii of field bends shall not be less than those established by the N.E.C.
 7. Provide raceway expansion fittings where necessary. Adjust position of expansion fitting proportional to the temperature at the installation.
 8. Install raceway supports to allow the rigid non-metallic conduit to slide through supports as temperature changes.
 9. Use galvanized rigid steel conduit elbows at all bends.
- L. PVC Coated Rigid Galvanized Conduit
1. All repairs and patching to PVC Coated Rigid Galvanized Steel Conduit, shall be in accordance with manufacturers recommendations. Contractors shall use manufacturer's patch and repair kits in order to guarantee compliance with all factory guidelines are met.
- M. Raceways in hung ceilings shall be installed on and secured to the slab or primary structural members of the ceiling, not to lathing channels or T-bars, Z-bars or other elements which are direct supports of the ceiling panels. Secure conduit firmly to the steel with clips and fittings designed for that purpose. Install as high as possible but not less than 1'-0" above the hung ceilings.
- N. Install exposed raceways parallel or at right angles with building lines. Secure raceway clamps or supports to masonry materials by toggle bolts, expansion bolts, or steel inserts. Install raceways to steel construction with appropriate clamps which do not depend on friction or set-screw pressure alone.



- O. Clear raceways of all obstructions and dirt prior to pulling in cables. Use ball mandrel (diameter approximately 85% of the conduit inside diameter) followed by close fitting wire brush and wad of felt or similar material. This assembly may be pulled in together with, but ahead of any cable being installed. Clean all empty raceways similarly. Clear any raceway which rejects ball mandrel, then re-attempt mandrel application.
- P. Support vertically installed raceways less than 2" trade size at intervals no greater than eight (8) feet. Support such raceways 2" trade size or larger and made up with threaded couplings, at intervals no greater than story height, or fifteen (15) feet, whichever is smaller.
- Q. Support horizontally installed raceways less than 1" trade size at intervals no greater than six (6) feet. Support such raceways 1" trade size or larger, at intervals no greater than ten (10) feet.

3.3 WIREWAYS AND AUXILIARY GUTTERS

- A. Place wireways installed in hung ceilings such that the covers will hinge upward from the side.

3.4 OUTLET, JUNCTION, AND PULL BOXES

- A. Provide outlet, junction, and pull boxes as indicated on the Contract Documents and as required for the complete installation of the various electrical systems, and to facilitate proper pulling of the cables. Size the junction boxes and pull boxes per the NEC. Size the boxes on any empty conduit systems as if containing conductors of No.4 AWG.
- B. The exact location of outlets and equipment is governed by the structural conditions and obstructions, or other equipment items. When necessary, relocate outlets so that when fixtures or equipment are installed, they will be symmetrically located according to the room layout and will not interfere with other work or equipment. Verify final location of outlets, panels equipment, etc., with the Commissioner prior to installation.
- C. Back-to-back outlets in the same wall, or "thru-wall" type boxes are not permitted. Provide 12-inch minimum spacing for outlets shown on opposite sides of a common wall to minimize sound transmission.
- D. Fit outlet boxes in finished ceilings or walls with appropriate covers, set flush with the finished surface. Where more than one (1) switch or device is located at one (1) point, use gang boxes and covers unless otherwise indicated. Sectional switch boxes or utility boxes are not permitted. Provide tile box or 4 inch square box with tile ring in masonry walls not plastered or furred. Where drywall material is utilized, provide plaster ring. Provide outlet boxes of type and size suitable for the specific application. Where outlet boxes contain two (2) or more 277 volt devices, or where devices occur of different applied voltages, or where normal and emergency devices occur in the same box, provide suitable barrier(s).
- E. All outlet and device box depths shall have sufficient depth to prevent damage to the conductors when devices or utilization equipment are installed as intended in the box.



F. Types of Boxes and Fittings for Various Locations

Location	Type
Outlet	Galvanized pressed steel
Outlet exposed to moisture or outdoors	Cast type conduit fitting
Splice	Galvanized pressed steel
Splice exposed to moisture or outdoors	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction - Outdoors	Aluminum (4½" x 5" x 3" minimum)
Terminal	Sheet steel (6" x 6" x 3" minimum)
Terminal - Outdoors	Aluminum (6" x 6" x 3" minimum)

G. Pull Box Spacing

1. Provide pull boxes so no individual conduit run contains more than the equivalent of four (4) quarter bends (360° total).
2. Conduit Sizes 1¼" and Larger:
 - a. Provide boxes to prevent cable from being excessively twisted, stretched or flexed during installation.
 - b. Provide boxes so that maximum pulling tensions do not exceed the cable manufacturer's recommendations.
 - c. Provide support racks for boxes with multiple sets of conductors so that the conductors do not rest on any metal work inside the box.
3. Conduit Sizes 1 Inch and Smaller, provide boxes at every (Maximum Distances):
 - a. 150 feet straight runs
 - b. 100 feet runs with one (1) 90° bend or equivalent
 - c. 75 feet runs with two (2) 90° bends or equivalent
 - d. 50 feet runs with three (3) or (4) four 90° bends or equivalent.

H. Sheet Steel Boxes



1. Boxes shall be sized to permit pulling, racking and splicing of the cables (if not indicated on the Contract Documents). They shall be sized to avoid exceeding the manufacturer's minimum bending radius recommendations for the conductors.
 2. Provide access for the removal and replacement of the conductors, splices and equipment.
 3. Minimum Dimensions of Boxes in Runs of 1½" or Larger Conduit:
 - a. Straight Pulls: Size length eight (8) times nominal diameter of the largest conduit.
 - b. Angle or U-Pulls: Size such that the distance between the conduit entry and the opposite wall of box is six (6) times the nominal diameter of the largest conduit.
 4. For boxes containing over 600V conductors, provide insulated cable supports and removable steel barriers to isolate each feeder. Stencil cable voltage class in red letters on the front cover of the box.
 5. Covers: Fasten to the flange or framework of the box with machine bolts, machine screws threaded into tapped holes or sheet metal screws as required.
 6. Plug any open knockouts not utilized.
- I. Pull and Splice Boxes, Outdoors
1. Where size of the box is not indicated, size to permit pulling, racking and splicing of cables being installed.
 2. Braze ground connector suitable for copper cables to the inside of the box.
- J. Floor Boxes
1. Prior to the Concrete Pour:
 - a. Orient as shown on the Contract Documents and obtain approval from the Commissioner.
 - b. Firmly support all boxes.
 - c. Adjust leveling screws to ensure that the box covers will be flush with the finished floor.
 - d. Plug unused openings with proper fittings and seal joints with a compound for exclusion of concrete and moisture.
 2. After the Concrete Pour:
 - a. As soon as traffic is permitted on the slab, remove any accumulation of water and foreign matter to avoid corrosion and rust.
 - b. Insure covers are flush with the finished floor.



c. Install cover plates and accessories after floor finishing materials have been installed; refer to the Contract Documents for requirements for the types of covers.

K. Identification labels for all pull, splice and junction boxes in main feeder and subfeeder runs, shall indicate nominal system voltage:

1. Apply labels after painting of any boxes, conduits, and surrounding areas are completed.
2. Clean surfaces before applying labels; clean aluminum surfaces with solvent wipe.
3. Apply labels on the cover and a minimum of one (1) fixed side; one (1) label visible from the floor where the boxes are installed exposed.

3.5 FIRE PUMP AND SERVICE ENTRANCE RACEWAYS

- A. Use rigid steel heavy-wall conduits.
- B. Encase in concrete with a minimum of 2" of cover.
- C. Utilize red dye in the fire pump duct bank.

3.6 SLEEVES

- A. Where sleeves are required for the installation of electrical work passing through walls or floors, furnish and install under this Section of Specification unless indicated otherwise on the Contract Documents. Use galvanized or black enameled rigid steel conduit or Schedule 40 black steel pipe. Do not use aluminum conduit. Where specific sizes are not indicated on the Contract Documents, size sleeves shall provide ½ inch clearance around the outside surface of the item for which installed. Cut flush with the wall surfaces and extend two (2) inches above the finished floor level or as indicated on the Contract Documents. In mechanical rooms, extend sleeve four (4) inches above the finished floor level.
- B. For interior walls and for floors, pack space between the conduit, ground cable or similar items and sleeves to the full depth of the wall or slab thickness with fire stopping material to maintain the required rating.

3.7 CABLE SUPPORT BOXES

- A. Cable support boxes shall be installed and of dimensions as required by the NEC. These boxes shall be built of steel or aluminum with removable cover secured by brass machine screws and shall be stiffened with heavy angle irons. Cable supports shall be OZ type "S". Boxes must in all ways be satisfactory to the Commissioner and subject to his approval. Provide ground lug in the box, secured by welding or brazing. Submit shop drawings for approval.

END OF SECTION 26 05 33



**SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS**

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 WORK INCLUDED

- A. Fixed identification for:
1. Panelboards.
 2. Transformers.
 3. Disconnect Switches/Enclosed Circuit Breakers.
 4. Motor Controllers.
 5. Wall Plates.
 6. Pullboxes, Enclosures and Cable Terminations.
 7. Fire Alarm Panels.
 8. Capping and Staking.
 9. Luminaires.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Identification procedures shall be noted and scheduled on the applicable shop drawings.
- C. Provide samples to illustrate composition, size, colors, lettering style, mounting provisions, and graphic features of all identification products.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.



- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Industry standards shall apply.
 2. NFPA 70.
 3. ANSI A13.1 ANSI Z535-4.
 4. 29 CFR 1910.144/29 CFR 1910.145
 5. OSHA Standards.
 6. IEEE C2-2017
 7. UL 969

PART 2 - PRODUCTS

- 2.1 Unless otherwise noted, nameplates shall be black bakelite plates with white engraved upper case letters enclosed by white border on beveled edge.
- 2.2 Nameplates for equipment supplied by the emergency system shall be red bakelite with white lettering.
- 2.3 All nameplates must be engraved and must be secured with rivets, brass or cadmium plate screws. The use of vinyl type adhesives or the like is unacceptable.
- 2.4 Lettering heights unless otherwise noted must be as follows:

Item	Lettering Height
Panelboards	1/2"
Disconnect Switches/Enclosed Circuit Breakers	1/2"
Motor Controllers	1/4"
Wall Plates	1/8"
Pullbox, Enclosures and Cable Terminations	1/8"
Fire Alarm Panels	1/2"
Capping and Staking	1/2"
Luminaires	1/2"



- 2.5 Cable tags must be flameproof and secured with flameproof non-metallic cord.
- 2.6 Nameplate inscriptions must bear the name and number of the equipment to which they are attached as indicated on the Contract Documents. The Commissioner reserves the right to make modifications in the inscriptions as necessary.
- 2.7 The Commissioner reserves the right to request additional nameplates at the time of review of shop drawings and upon site observations. These shall be furnished at no additional cost to the City of New York.
- 2.8 Do not manufacture or install nameplates until approved by the Commissioner.
- 2.9 Apply adhesive identification labels after work is completed and all surfaces have been properly cleaned.
- 2.10 **WARNING LABELS AND SIGNS**
 - A. Provide and comply with NFPA 70 and 29 CFR 1910.145.
 - B. Metal-back, Butyrate Warning Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.
 - C. Warning Label and sign shall include, but not be limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER-ELECTRICAL SHOCK HAZARD EQUIPMENT HAS MULTIPLE POWER SOURCES"
 - 2. Workspace Clearance Warning: "WARNING – OSHA REGULATION – AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

PART 3 - EXECUTION

3.1 PANELBOARDS

- A. Refer to DDC General Conditions.
- B. Furnish and install a nameplate for each panelboard engraved with the identification indicated on the Contract Documents. Mount at the top of the panel.
- C. After installations are complete, provide and mount under sturdy transparent shield in the directory frame of each panel door, a neat, accurate and carefully typed directory properly identifying the as-built lighting, receptacles, outlets, and equipment each overcurrent device controls.
- D. Include on the directory the panel identification, the cable and raceway sizes of panel feeder, and the feeder origination point.



3.7 CAPPING AND STAKING

- A. Wherever raceways are for future use and are terminated outside of the structure, stake the location with a 2' long 1" x 1" wooden stake having a conspicuous colored flag.
- B. Provide metal markers inserted into 8" D x 12" concrete ballast at all raceway terminations exterior to the structure. Inserts must state the date the raceway was installed, the size of the raceway and the point of the raceway termination.
- C. Indicate exact location on as-built documents.

3.8 LUMINAIRES

- A. Where connected to other than 120 Volt circuit, provide each luminaire fixture with the ballast voltage stenciled on the ballast cover in letters not less than ½ inch high.

END OF SECTION 26 05 53



**Department of
Design and
Construction**

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**SECTION 26 24 16
PANELBOARDS**

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 WORK INCLUDED

- A. Panelboards.
B. Circuit Breakers.
C. Fusible Switches.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Shop Drawings
1. Submit manufacturer's data, including main devices and lug sizes; branch circuit device sizes and arrangement; bus ampacities; voltage, ampere, withstandability and short circuit rating of the panelboard and overcurrent protective devices; dimensions and construction; gutter and backbox dimensions; nameplate and legend; protective coating; and all pertinent details of panel, enclosure, cover, and method of securing cover and lock.
 2. Include fully detailed and dimensioned plan elevations of each panel at a minimum of 1/4" scale.
 3. Submit plans indicating maximum dimensions for panelboards including clearances between the panelboards and adjacent surfaces and other items to meet the NEC.
 4. Submit wiring diagrams for all panelboards showing all connections to incoming and outgoing feeders.
- C. Product Data
1. Submit manufacturer's catalog data for all circuit breakers and switch assemblies.
 2. Submit certification of U.L. compliance to integrated short circuit withstand requirements.



1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and recommendations of the following:
 - 1. Panelboards:
 - a. U.L. Standards #50 and #67.
 - b. Federal Standard W-P-115A Type II, Class 1.
 - c. NEMA Standard PB-1.
 - d. CSA Standard C22.2 No. 29-M.
 - e. NFPA 70
 - 2. Circuit Breakers:
 - a. U.L. Standard #489.
 - b. Federal Standard W-C-375B
 - c. NEMA Standard AB-1.
 - d. CSA Standard C22.2 N. 5-M91.
 - 3. Fusible Switches:
 - a. Federal Standard W-S-865C.
 - b. U.L. Standard 98.
 - c. NEMA KS-1.
 - 4. Ground Fault Circuit Interrupters (GFCI):
 - a. UL 943.
- C. Testing Agency Qualifications
 - 1. Member company of NETA and NRTL



PART 2 - PRODUCTS

2.1 PANELBOARDS

- A. Provide panelboards consisting of an assembly of branch circuit switching and protective devices (circuit breakers, switch and fuse units, or combination thereof) mounted inside a dead front enclosure. All panelboards shall be door-in-door construction. Provide the number and size of these branch circuit devices as indicated by the circuiting, on the Contract Drawings, and in the Schedules. Locations of circuit breakers shall be as indicated in the schedules.
- B. Provide the following modifications and additional equipment as shown on the Contract Drawings:
1. Main circuit breakers.
 2. Shunt trip circuit breakers.
 3. Ground fault circuit interrupting (GFCI) circuit breakers.
 4. Feed-through lugs and/or bus.
 5. Electronic sub-metering CT and wiring.
- C. Interiors
1. Provide a rigid removable assembly of copper bus bars and interchangeable bolted branch circuit devices.
 2. Material: Hard-drawn copper, 98 percent conductivity.
 - a. Copper bus bars shall have sufficient cross-sectional area to provide a current density of 1000A per square inch.
 3. Bus bars drilled to permit branch circuit devices of all sizes and number of poles to be interchangeable and installed in any spare space of sufficient size, without disturbing adjacent units; without removing main bus or branch circuit connectors and without machining, drilling, or tapping in the field.
 4. Bus shall be arranged in sequence or distributed phasing so that a multi-pole circuit breaker can replace any group of single circuit breakers of the same size.
 5. Provide full-size neutral bus in each panelboard, unless otherwise noted.
 6. Provide ground bus in each panelboard. On 208Y/120 volt panelboards provide isolated ground bus when served from a feeder that includes an isolated ground conductor. Each isolated ground bus shall be capable of terminating one (1) conductor per panelboard pole position minimum.



D. Enclosure

1. Enclosure shall be code gauge hot zinc dipped galvanized steel box, in accordance with UL 50 requirements.
2. Provide a bolt-on ground connector to inside of enclosure.
3. Enclosure shall be flush mounted in finished areas and where indicated. Enclosure shall be surface mount elsewhere.
4. Gutter Extension and Barrier: Same gauge and finish as the panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.

E. Front

1. Doors shall be provided on all lighting and power panels. On switch and fuse panelboards doors, over current devices shall not be provided unless rated for same.
2. Doors shall be heavy code gauge galvanized steel as required to maintain panel face flat.
3. Front shall be held closed with trim clamps.
4. Front door frame shall be hinged with captive screws. Circuit breaker section door shall be hinged.
5. Provide as-built typewritten directory for total number of poles. Install behind plastic transparent protective cover on the panel frame.
6. Provide approved lock. All panels shall be keyed alike. Furnish four (4) sets of matching keys to the Commissioner.
7. Provided welded angle rest at the bottom of the door to facilitate cover installation.
8. Doors over 48" in height shall have auxiliary fasteners at top and bottom of door in addition to lock and catch.
9. Enclosure shall be factory finished in ANSI 61 gray enamel or two (2) coats of air-drying lacquer over a rust inhibiting primer.

F. Multiple Section Panelboards

1. Each section of multiple section panelboards shall be the same height.
2. Multiple sections shall each contain the same number of poles (e.g., 72 poles equals 2-36 pole panels).
3. When a multi-section panel is served from a transformer, the main circuit breaker shall be provided in the first section to adequately protect the transformer secondary.



G. Terminal Lugs

1. Terminal lugs shall be bolted type, labeled for either copper or conductors.
2. Main lugs shall be located properly at top or bottom, depending where main feeder enters.
3. Lugs shall be rated for 75°C terminations.

H. Electrical Ratings

1. Panelboards shall be rated 208Y/120 volts or 480Y/277 volts, 3 phase, 4 wire, full neutral with ampacities as indicated on the Contract Drawings (unless otherwise noted).
2. Panelboards shall be fully rated for the available short circuit current indicated on the Contract Drawings. Each panelboard, as a complete and finished product, shall receive a single U.L. approved integrated equipment rating by the manufacturer. The integrated equipment short-circuit rating shall certify that all equipment is capable of withstanding the thermal and magnetic stress of a fault equal to the value specified on the Contract Drawings. Such rating shall be established by actual tests by the manufacturer on similar equipment. This certification shall be permanently affixed to each panelboard.
3. Where indicated, provide panelboards having a "service entrance" Type U.L. label with neutrals factory bonded to the frame or enclosure.
4. Provide surge protective devices as indicated on the Contract Documents.

I. Circuit Breaker Devices

1. Circuit breakers shall be plastic molded case bolt on type with a completely sealed enclosure and toggle type operating handle. Trip ampere rating and "ON/OFF" indication shall be clearly visible. Plug-in type circuit breakers shall not be permitted.
2. Circuit breakers shall be thermal-magnetic trip-free, trip-indicating, quick-make/quick-break, with inverse time delay characteristics. Single-handle and common tripping multi-pole breakers shall be provided.
3. Provide with silver alloy contacts with auxiliary arc-quenching devices.
4. Panelboard shall be of the type which will accept the field installation of shunt trip devices of 60 amperes or less on the branch devices.
5. Interrupting capacities shall be as indicated on the Contract Drawings. As a minimum, 208Y/120 volt devices shall be not less than 10,000 AIC; 480Y/277 volt devices shall not be less than 14,000 AIC; and 42,000 AIC interrupting capacity for distribution style panels.
6. For lighting circuits provide devices labeled "SWD" for switching purposes.
7. Provide with bolted type terminals U.L. listed for copper 75°C conductors.



8. Provide main breakers in panels served from transformers unless separate transformer secondary protection is provided. Main circuit breakers shall be provided in the first section only when multi-section panelboards are provided.
9. Each breaker or space unit shall be provided with an individual number.
10. Circuit breakers serving computer equipment and those serving kitchen equipment beneath cooking hoods shall include a shunt trip coil, when a remote breakglass station or EPO is provided.
11. Shunt trip breakers shall be supplied with 120 volt coils. Provide 120 volt circuit from nearest 120 volt panel to coil. Where shunt trip breakers are in emergency panels provide emergency 120 volt source for same from nearest 120 volt emergency panel.
12. Provide handle padlocking device for designated breakers.
13. For HVAC equipment provide U.L. listed "HACR" type devices.
14. Provide tie-bars on all single pole circuit breakers serving multi-wire branch circuits in compliance with NEC Article 210.4(B). The disconnecting means shall simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.
15. Should fixed in-feeds require more than one (1) branch circuit, all circuit breakers shall be equipped with tie-bars to allow all circuits to be disconnected during maintenance events.

J. Ground Fault Circuit Interrupters (GFCI)

1. Ground fault circuit interrupter branch circuit breakers shall be provided as indicated on the Contract Drawings. Circuit breakers shall be circuit interrupting which will operate manually for normal switching functions and automatically under overload, short circuit, and 0.005 amp line-to-ground fault conditions. The operating mechanism shall be entirely trip-free so that contact cannot be held closed against an abnormal overcurrent, short circuit, or ground fault condition. The device shall be bolt-on type with insulated case construction and shall be interchangeable with standard single pole breakers utilized in the panelboard.

K. Switch and Fuse Devices

1. Provide a quick-make/quick-break, horsepower rated, dead-front type of switch. Each switch shall be a self-contained unit, externally operable from the front. Provision for padlocking handle in "OFF" position shall be provided.
2. Fuse and switch compartment shall be interlocked to prevent access to the fuse compartment until switch is switched to "OFF" position. Interlock shall be intentionally releasable by externally applied tool to permit investigating switch and fuses under load.
3. Switch units shall be interchangeable for replacement, without disturbing balance of distribution panelboard's operation.



4. Switches shall be equipped with rejection type clips for U.L. Class R fuses up to 600A, suitable for U.L. Class L fuses above 600A.
5. Switches shall reject fuses other than those specified.

2.2 MANUFACTURERS

- A. Electrotech
- B. All City Switchboard
- C. Lincoln Electric.
- D. General Electric
- E. Square 'D'
- F. Eaton
- G. Siemens
- H. Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to DDC General Conditions.
- B. All panels shall be mounted at a maximum height of six feet six inches to top unless otherwise noted.
- C. Surface type panels shall be mounted a minimum one inch off the wall on channels.
- D. Feed-through panels shall be connected to a main feeder by insulated parallel gutter taps. Full-size tap shall be provided for two (2) or more panels on a common feeder.
- E. Where panels are flush mounted, the fire integrity of the wall in which it is installed shall be maintained. Utilize additional fire rating equipment to maintain wall rating.
- F. Branch circuit conductors shall be neatly arranged and shall be tied together in each gutter with nylon pre-manufactured cable ties at four inch intervals.
- G. All knockouts removed and not utilized shall be plugged.
- H. Provide nameplate and fill out as-built typewritten panel directory.



- I. Provide grounding and bonding jumpers per the grounding specification section herein and as indicated on the Contract Drawings.
- J. All branch circuit conductors, within panelboards, shall be labeled with respective circuit number.
- K. Stub three (3)-1" empty conduits from each recessed panelboard into the ceiling cavity above for future use.
- L. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

3.2 TOUCH UP AND CLEANING

- A. All backboxes shall be vacuumed clean of debris after installation and prior to substantial completion.
- B. Scratch marks, etc., shall be touched up with matching paint.

3.3 OBSERVATIONS

- A. Panel fronts shall be removed when directed by the Commissioner for observation (either by floor, or by group of floors, or all panels on the project as required by the Commissioner) and reinstalled immediately thereafter the observations.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Retain a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

3.5 FIELD QUALITY TESTING

- A. Perform the following field quality tests and visual inspections, in accordance with NETA Acceptance Testing Specifications.
 - 1. Exterior of the equipment.
 - 2. Interior of the enclosure.
 - 3. Interior bus/cable systems.
 - 4. Bus support insulators and spacing.
 - 5. Doors/panels/brackets.
 - 6. Door handles/locking bars/mechanisms.
 - 7. Instruments/relay covers.



8. Control/metering transformers/instruments.
 9. Grounding/neutral bar installation is correct per application.
 10. Wiring/terminal connections.
 11. Proper electrical clearances are maintained.
 12. Complete circuit directories are properly installed.
 13. Surge protection devices are installed properly.
 14. Load current readings are balanced per Code.
- B. Verify circuit breaker identification, sizing and operation in all distribution panelboards.
1. Compile a comprehensive listing of all distribution panelboards, as well as, their respective directories, feeder sizes and designation from where panels are served from.
 2. Compare equipment nameplate data with the Contract Drawings and specifications.
 3. Inspect circuit breaker for correct mounting.
 4. Inspect case for cracks or other defects.
 5. Test all ground fault devices.
- C. Verify that conductor size is appropriate for breaker size.
1. De-energize each panelboard breaker while observing respective loads served by the breaker.
 2. Re-energize each panelboard breaker verifying equipment is re-energized.
 3. Each tested breaker, when placed in the "OFF" position, breaks electrical power to the respective (labeled) load.
 4. Each tested breaker, when placed in the "ON" position, supplies electrical power to the respective (labeled) load.
 5. No visible and/or audible arcing is present.
 6. There shall be no short circuits.
 7. Lugs shall all be torqued per manufacturer's requirements.
 8. Panelboards shall be clean and neat. Panelboard covers shall be reinstalled.



- D. Verify Circuit Loads on Distribution Panels.
1. Ensure all distribution panels have the proper breaker feeding each load.
 2. Compile a comprehensive listing of all distribution panelboards, as well as, their respective directories.
 3. Verify breaker matches breaker load.
 4. Check breaker balance phase-to-phase.
 5. Check line to ground resistance.
 6. Check setting on the breaker for trip to motor loads.
 7. Verify settings and trip on breakers to match the calculated reports.
 8. Load shall not be higher than 80% of the breaker.
 9. Phases are properly balanced.
 10. No more than 0.005 ohm to ground.
- E. Submit all field quality test results. All tests shall be certified by the testing agency.

END OF SECTION 26 24 16



**SECTION 26 27 26
WIRING 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 WORK INCLUDED

- A. Switches and Dimmers.
- B. Receptacles.
- C. Wall Plates.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Submit manufacturer's catalog cuts and specifications for all types for each product indicated. Highlight exact model being proposed in the submittal.
- C. Submit samples for finish, color and texture as requested by the Commissioner.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 - 1. Switches.
 - a. NEMA Standards WD-1 and WD-6.
 - b. U.L. 20.
 - 2. Receptacles:
 - a. NEMA Standards WD-1 and WD-6



- b. U.L. Standard 498
 - c. U.L. 943 (GFCI receptacles).
 - d. U.L. 514 (Poke Through Assemblies)
- C. Obtain each type of wiring device through a single manufacturer, where available.

PART 2 - PRODUCTS

2.1 SWITCHES

- A. Switches shall be commercial specification grade, flush mounting, quiet-operating AC type, rocker type, heat-resistant plastic housing and self-grounding metal strap. Provide silver alloy contacts. Switches shall be rated 20A at 120-277V and capable of full capacity on all lamp loads. Switches shall be designed for side or back wiring with up to No. 10 AWG wire. Switches shall be rectangular (decorator) style in all areas.
- B. Provide single-pole, double-pole, 3-way, 4-way, pilot or keyed type switches, as indicated on the Contract Drawings or required.
- C. Switch with Pilot Light: Switches indicated with an illuminated rocker switch in the "OFF" position for visual load monitoring shall be provided as indicated on the Contract Drawings.
- D. The color of all devices shall be selected by the Commissioner.
- E. Manufacturers
 - 1. Switches
 - a. Leviton
 - b. Hubbell
 - c. Bryant
 - d. Pass & Seymour/Legrand
 - e. Lutron
 - f. Or approved equal.

2.2 RECEPTACLES

- A. Receptacles shall be two-pole, three-wire, grounding, simplex or duplex NEMA 5-20R, rated for 20 amperes at 125 volt electrical alternating current as indicated on the Contract Documents and ANSI standard type, commercial specification grade, with brass contacts that accepts a plug with two (2) parallel blades and one



- (1) grounding blade. Receptacles shall be equipped with terminals to accept up to No. 10 AWG conductors. Enclosures shall be heat-resistant plastic with nylon face and two (2) grounding screws. Provide break-off terminals for 2-circuit wiring. Provide rectangular style.
- B. Ground fault circuit interrupter (GFCI) receptacles shall interrupt ground leakage currents between 4-6 mA having a maximum circuit current of 20 amperes. Employ feed through or non-feed through devices as indicated, or required. Configuration shall be straight blade type NEMA 5-20R. Utilize 2 3/4" deep outlet boxes without any adaptors. Long life LED light shall be provided, within the receptacle. Device shall have a minimum nominal tripping time of 0.025 seconds.
 - C. Provide commercial specification grade twist lock type receptacles as indicated on the Contract Documents.
 - D. The color of all normal devices shall be selected by the Commissioner.
 - E. Manufacturers
 - 1. Receptacles:
 - a. Leviton
 - b. Hubbell
 - c. Thomas & Betts
 - d. Pass & Seymour/Legrand
 - e. Or approved equal.

2.3 WALL PLATES

- A. Provide wall plates for all receptacles, outlets, and switches of 430 stainless steel with satin finish, unless otherwise noted. When two (2) or more switches or devices are shown in one (1) location, provide a common wall plate.
- B. Provide cast aluminum metal plate with stainless steel spring loaded, gasketed, double flap lift cover to provide protection for the receptacle and plug when "IN USE" for all exterior receptacles, those in mechanical rooms, those in garages, and where indicated on the Contract Documents. These covers shall be labeled and listed as "extra duty" type.

PART 3 - EXECUTION

3.1 ALL DEVICES

- A. Refer to DDC General Conditions.

3.2 SWITCHES

- A. Install all switches vertically with the "ON" position on top, unless noted or specified otherwise.
- B. Where switches are indicated near doors, corner walls, etc., install not less than two (2) inches and not more than twelve (12) inches from the trim.
- C. Carefully coordinate locations of switches to insure locations are at the strike side of doors.
- D. Furnish and install an engraved legend for each switch that controls motors, equipment systems, etc., not located within the sight of the controlling switch.
- E. Install wall dimmers to achieve indicated rating after derating for ganging according to the manufacturer's written instructions.
- F. Install unshared neutral conductors on the line and load sides of the dimmers according to the manufacturers' written instructions.

3.3 RECEPTACLES

- A. Unless otherwise noted, mount receptacles vertically with U-shaped ground position at the top.
- B. Coordinate device layouts and installation with all other adjacent devices and any wall obstruction prior to any work.

3.4 GROUND FAULT CIRCUIT INTERRUPTERS (G.F.C.I.)

- A. Swab all conduits and outlet boxes clear of moisture.
- B. Do not combine G.F.C.I. protected circuits with other circuits in the same raceway; only one (1) G.F.C.I. circuit per raceway.
- C. Do not substitute G.F.C.I. circuit breakers for G.F.C.I. receptacles.
- D. All G.F.C.I. receptacles shall be installed in a readily accessible location per the NEC.

3.5 DEVICE GROUNDING

- A. Provide a No. 12 AWG grounding conductor from the device grounding terminal to the panelboard ground bus.
- B. Provide a No. 12 AWG grounding conductor from the device grounding terminal to the outlet box.

3.6 INSTALLATION

- A. All devices shall be flush-mounted except as otherwise noted on the Contract Documents.



B. Locations

1. Comply with layout drawings for general location.
2. Relocate outlets obviously placed in a location or manner not suitable to the room finish.
3. Avoid placing outlets behind open doors.

C. Mounting heights and positions are specified as indicated on the Contract Documents. Architectural drawings take precedence over heights and positions specified in the electrical specifications.

D. Ganging of Switches: Provide steel barriers between ganged 277 volt switches of different phases between all ganged dimmers; and between normal and emergency sources.

E. Fastening: Securely fasten the devices into the outlet boxes and attach appropriate wall plates.

F. Testing

1. After installing wiring devices and after circuiting has been energized, test for proper polarity, ground continuity, and other requirements indicated on the Contract Documents.
2. Test GFCI operation with local fault simulation according to the manufacturer's instructions.
3. Replace all malfunctioning devices with new and retest as specified above.

G. All devices shall be provided with identification as indicated in the identification specification section.

3.7 CLEANING

- A. Clean equipment and devices internally and externally using methods and materials recommended by the manufacturer, and repair any damaged finishes.**

3.8 SERVICE AND SUPPORT

A. Startup and Programming

1. Provide a factory-certified field service representative to visit the site to ensure proper system installation and operation under the following parameters:
 - a. Qualifications for factory-certified field service representative:
 - 1) Minimum experience of two (2) years training in the electrical/electronic field.
 - 2) Certified by the equipment manufacturers on the systems installed.



- b. Perform site visits upon completion of the wiring device systems, installation, and;
 - 1) Verify connections and locations of all control devices.
 - 2) Verify systems operation control, zone by zone.
 - 3) Verify proper integration of the manufacturers' interfacing equipment.
 - 4) Obtain sign-off on all system functions.

END OF SECTION 26 27 26



**SECTION 26 28 13
FUSES (600 V AND LESS)**

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 WORK INCLUDED

- A. Fuses and Accessories.
B. Spare Fuse Cabinets.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Shop Drawings
1. Submit dimensioned drawings of each spare fuse cabinet by type and size. Indicate storage provisions for fuse cartons.
- C. Product Data
1. Provide a complete set of let-through curves for each type of fuse.
 2. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
 3. Submit listing of all types, sizes and quantity of fuses which will be installed including location of each.
 4. Submit listing of all spare fuses by types, sizes and quantities, which will be furnished for placement in the respective fuse cabinets.
 5. Upon completion of a coordination study, provide and coordinate appropriate fuse components, as required by the study.



6. Short circuit current analysis is based upon fuse characteristics from a particular manufacturer for let-through currents. The contractor shall provide appropriate fuse curves and let-through values which correspond to values shown on the Contract Documents. Submit comparative chart of fuses for review prior to acceptance.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
 1. U.L. Standard #198.
 2. U.L. Standard #977.
 3. NFPA 70, Article 100.
 4. ANSI.
 5. IEEE 242.
- C. All fuses shall be the same type within a piece of equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Mains, Feeders and Branch Circuits
 1. Circuits 601 to 6000 amperes shall be protected by Class L, Time-Delay fuses with 200,000 RMS symmetrical interrupting current rating.
 2. Circuits 0 to 600 amperes shall be protected by Class RKI, dual element fuses, for 250 volt applications and 600 volt applications, with 200,000 RMS symmetrical interrupting current rating. Provide open fuse indicator.
 3. A minimum 2:1 ratio must be allowable between the ampere rating of the main fuse and that of the feeder fuse, and between the feeder fuse and branch circuit fuse to obtain selective coordination and minimize switch size.
 4. Metal end caps of fuses rated 61 through 600 amperes shall be electrically connected to the fuse blades to facilitate voltage testing during OSHA required lock out/tag out procedures.
 5. All fuses shall be of the same manufacturer.



B. Motor Protection

1. All the individual motor circuits shall be protected by class RK1, Class J, or Class L time delay type fuses. Motors under 10 HP may utilize Class CC fuses with blown indicators.
2. Fuse sizes for motor protection shall be appropriate for starting current of the motor.

C. Labels

1. "Low-Peak Yellow" or equivalent notice labels to alert the end user of the engineered level of protection of the electrical equipment shall be field installed by the Electrical subcontractor. They shall be obtained from the fuse manufacturer, marked with the proper fuse rating per the specifications and placed in a visible location in the enclosure.
2. Label each spare fuse cabinet.

2.2 MANUFACTURERS

A. Fuses

1. Cooper Bussmann
2. Mersen
3. Littelfuse
4. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions.
- B. Do not install fuses until equipment is ready to be energized. Final tests and inspections shall be made prior to energizing the equipment.
- C. Provide all fuses except as otherwise noted. All fuses shall be new.
- D. Replace any fuses which are not functioning.
- E. Labels: Install appropriate label supplied the by fuse manufacturer within each switch, motor starter, or panelboard door, or at location next to the fuse clips.
- F. Coordinate fuse ratings with HVAC, refrigeration, and plumbing equipment limitations for maximum fuse size prior to any installation.



- G. Arrange fuses so rating information is readable without removing fuses.
- H. As-built drawings shall indicate actual fuse sizes, ratings and types.

END OF SECTION 26 28 13



**SECTION 26 28 16
DISCONNECT SWITCHES**

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 WORK INCLUDED

- A. Safety Switches (Fused and Non-Fused Types).
- B. Manual Control Switches.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Product Data
 - 1. Submit manufacturers' data for all disconnect switches, including dimensional data, ratings, fuse ratings and types, and cable terminal sizes.
 - 2. Identify motor or equipment served by each switch; indicate nameplate inscription.

1.4 QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest applicable recommendations of the following:
 - 1. U.L. Standards #98.
 - 2. NEMA Standard KS1.
 - 3. U.L. 20 Test Standards for Toggle Switches.
 - 4. NFPA 70.



PART 2 - PRODUCTS

2.1 SAFETY SWITCHES

- A. Provide heavy-duty, horsepower rated, single-throw knife switch with quick-make/quick-break mechanism, capable of full load operations. Switches shall meet NEMA and New York City Department of Buildings specifications for Class A switches.
- B. Provide with contact arc-quenching devices, such as magnetic blowouts or snuffing plates. Provide self-aligning switchblades with silver alloy contact areas, designed so that arcing upon making and breaking does not occur on final contact surfaces. Provide with high-pressure, spring-loaded contact. Switch parts shall be mounted on high-grade insulating base.
- C. Enclosure: Shall be NEMA 1 with hinged door, and defeatable interlock when switch is in "ON" position, able to be padlocked in "ON" and "OFF" positions. Provide NEMA 3R (rain-tight) enclosure for exterior installations and NEMA 12 in warehouse and mechanical rooms.
- D. Size, fusing and number of poles shall be provided as shown on the Contract Documents or as required. Where fused, the switch shall be provided with U.L. listed rejection feature to reject all but Class R fuses. Provide horsepower rated switch to match motor load if size is not shown. Provide 3 pole plus solid neutral switches on four wire circuits and 3 pole switches on all other circuits, unless otherwise noted.
- E. Lugs shall be U.L. listed for copper conductors and be front removable. Coordinate lug sizes and quantities with the respective line and load feeder and provide accordingly.
- F. Provide six (6) pole switches for connection to motors with the following starter types:
 - 1. Non-reversing - two step - part winding - star connected.
 - 2. Non-reversing - full voltage - two speed separate winding.
 - 3. Non-reversing - full voltage - two speed single winding.
 - 4. Where otherwise required.
- G. Provide auxiliary contacts for switches where required or where indicated on the Contract Documents.
- H. Viewing Windows – Provide viewing windows for all safety switches to provide blade visibility when the switch door is closed.

2.2 TOGGLE TYPE MANUAL CONTROL SWITCHES

- A. Provide switches which operate at their full rating with fluorescent, tungsten, and resistance loads and at 80% of their rated capacity with motor loads.



- B. Switches shall be heavy duty type and shall have:
 - 1. Arc-resisting bodies.
 - 2. Slow make-and-break mechanisms.
 - 3. Silver alloy contact buttons.
 - 4. Side or back wiring with up to No. 10 AWG solid conductors.

2.3 MANUFACTURERS

- A. Safety Switches
 - 1. Square 'D'
 - 2. Eaton
 - 3. General Electric
 - 4. Siemens
 - 5. Or approved equal.
- B. Toggle Type Manual Control Switches
 - 1. Square 'D'
 - 2. Eaton
 - 3. General Electric
 - 4. Siemens
 - 5. Or approved equal.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Refer to DDC General Conditions.
- B. Provide each motor over ½ HP with a horsepower rated safety-type disconnect switch.
- C. Provide each piece of equipment utilizing multi-phase power with a safety-type disconnect switch.



- D. Provide each piece of equipment utilizing single-phase power but protected at over 30 amperes with a safety-type disconnect switch.
- E. Equipment other than that mentioned above shall utilize toggle type manual control switch properly sized and rated for equipment it disconnects.
- F. Factory installed disconnect switches may be used to satisfy the above requirements.
- G. Disconnect switches serving the fire alarm system shall be painted RED.

3.2 MOUNTING

- A. Provide connections and wiring to and from each disconnect switch.
- B. Provide all frame supports, backboards and the like for proper mounting of all starting, control and disconnect equipment installed under this Division. Angle iron frames, racks and backboards shall be of adequate dimensions to permit an orderly arrangement of equipment and conduit connections therein.
- C. Disconnect switches shall be mounted on adjacent wall or from the floor with independent supports. Switches shall not be mounted on the equipment housings.
- D. Switch enclosure shall be rigidly mounted and with proper alignment on building structure or steel supports with centerline of operating handle not more than 6 feet above finished floor unless otherwise required. Steel supports fabricated from standard rolled structural steel shapes or framing channel shall be used to provide one-inch separation between enclosure and building wall for vertical flow of air.
- E. Fuses shall be installed as specified in this Division.
- F. Completed installation shall contain no extraneous openings.
- G. All viewing windows shall be cleaned.
- H. Ground and bond all circuit and motor disconnect switches.
- I. Tighten connector and terminal bolts in accordance with the manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A.

3.3 IDENTIFICATION

- A. Provide nameplate identification of all disconnect switches in accordance with these specifications. Nameplate shall include fuse type and rating.

3.4 FIELD TESTING

- A. The following field acceptance tests shall be performed and test report submitted:



1. Compile a comprehensive listing of building motor loads, including voltage, phase, HP, FLA, and location.
2. Compare equipment nameplate data with the Contract Drawings and specifications.
3. Command inductive motor loads to start through respective manual or computer controls.
4. With individual motor loads running break power to the load with respective disconnect switch and/or safety stop.
5. Wait until motor loads come to a complete stop.
6. Re-connect power to the motor load with the respective disconnect switch and/or safety stop.
7. Compare fuse size with motor full-load current rating to verify correct sizing.
8. Verify that no visible or audible arcing is present.

END OF SECTION 26 28 16



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SECTION 26 29 13
INSTALLATION OF INDIVIDUAL MOTOR 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 WORK INCLUDED

- A. Installation of Individual Motor Controllers, including variable frequency drives.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.
- B. Submit a motor matrix spreadsheet for each floor of the building. The spreadsheet shall be completed with accurate data for each of the following columns:
1. Equipment Designation.
 2. Quantity.
 3. Location.
 4. HP/kW.
 5. Voltage.
 6. Phase.
 7. FLA.
 8. Conduit.
 9. Phase Conductors (Quantity and Size).
 10. Ground Conductors (Quantity and Size).
 11. Starter Size (NEMA)
 12. Starter Heater Size.



13. Starter Fuse Size.
 14. Disconnect Switch Size.
 15. Disconnect Switch Fuse Size.
 16. Loose Starter/VFD
 17. Combination Starter/Disconnect Switch.
 18. Starter in Motor Control Center.
 19. Integral Control Panel.
 20. Motor Rotation.
 21. Panel Serving the load.
 22. Circuit Breaker or Fuse/Switch serving the load.
- C. This submittal shall be coordinated with the Mechanical and BMCS subcontractors prior to submission for approval.
- D. The matrix shall include all HVAC, plumbing and fire protection equipment.

PART 2 - PRODUCTS

2.1 NOT USED.

PART 3 - EXECUTION

3.1 INSTALLATION OF MOTOR CONTROLLERS

- A. Install individual motor controller on nearby wall, within ten feet of motor to be controlled or adjacent to motor on steel supports fabricated from standard rolled structural steel shapes or framing channel, or as required by the Contract Documents. Do not mount controllers on the equipment or fan housings.
- B. Perform all necessary field modifications and mounting adjustments to each individual motor controller to provide required operation.
- C. Coordinate installation with remote control devices and remote indicating devices for a complete and functional operation.
- D. Overload Elements: Furnish and install properly rated elements in controllers in accordance with the manufacturer's requirements.



- E. Furnish and install incoming and outgoing power feeders, including ground conductor.
- F. Nameplates: Furnish and install equipment identification nameplates on the exterior doors with rivets, brass or cadmium plate screws. The use of vinyl type adhesives or the like is unacceptable.
- G. Completed installation shall contain no extraneous openings.

3.2 FUSED DISCONNECT SWITCH

- A. Provide fused disconnect switches as noted on the Contract Documents and where multiple motor controllers are served by a common branch circuit or feeder.

3.3 COORDINATION

- A. Refer to DDC General Conditions.
- B. Review HVAC, Plumbing, and Fire Protection Contract Documents for required starter accessories, interlocks, etc. Failure to fully coordinate this item prior to installation shall in no way relieve this Contractor from providing a complete, functional, and coordinated system as described.
- C. Exact locations for all controllers and disconnect switches shall be coordinated with the mechanical subcontractor and Commissioner prior to any work. Locate coordinated controllers and disconnect switches locations on all coordination drawings.

3.4 FIELD VERIFICATIONS

- A. Verify proper operation of all motor starters for each individual motor load including:
 - 1. Compile a comprehensive listing of building motor loads.
 - 2. Compare equipment nameplate data with the Contract Documents and specifications.
 - 3. Inspect physical and mechanical condition.
 - 4. Motor-Running Protection
 - a. Compare overload element rating with motor full-load current rating to verify correct sizing. Replace if not proper size.
 - b. If motor-running protection is provided by fuses, verify correct rating considering motor characteristics and power-factor correction capacitors, if applicable.
 - c. When motor starter is in the "AUTO" position, command motor starter load to "RUN" from automatic control point.
 - d. With motor starters in the "AUTO" position, command motor starter load to "STOP" from automatic control point.



- e. Switch the motor starter into the "HAND" position.
 - f. Return motor starter "HAND/AUTO" switch to original position.
 - g. Run/stop lights shall operate and correspond to load conditions.
- B. Verify Voltage, Amperage and Phasing for Motors.
- 1. Compile a comprehensive listing of all building motor loads.
 - 2. Compare equipment nameplate data with the Contract Documents.
 - 3. Inspect physical and mechanical condition.
 - 4. Inspect for correct anchorage, mounting, grounding, connection and lubrication.
 - 5. Command motor load or major electrical equipment to run under the expected full load condition.
 - 6. Verify the absence of unusual mechanical or electrical noise or signs of overheating during initial test run.
 - 7. Measure the voltage and insulation resistance of each phase to ground and phase to phase.
 - 8. Measure running amperes and evaluate relative to load conditions and nameplate full-load amperes.
 - 9. Verify rotation to insure correct shaft direction.
 - 10. Test the motor overload relay elements by injecting primary current through the overload circuit and monitoring trip time of the overload relay.
 - 11. Test operation of the overcurrent protective device.
- C. Verify Motor Winding Resistance.
- 1. Compile a comprehensive listing of all building motor loads.
 - 2. Compare equipment nameplate data with the Contract Documents.
 - 3. Measure the voltage to each motor.
 - 4. Measure the start load and amps.



- D. Verify Magnetic Starter Heaters
 - 1. Compile a comprehensive listing of all building motor loads.
 - 2. Compare equipment nameplate data with the Contract Documents.
 - 3. Check magnetic starter heater size installed.
 - 4. Check starters on-auto-off.
- E. Submit all field test results.

END OF SECTION 26 29 13



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**SECTION 26 50 00
LUMINAIRES AND ACCESSORIES**

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 WORK INCLUDED

- A. Luminaires and Accessories.

1.3 SUBMITTALS

- A. Refer to DDC General Conditions.

B. Shop Drawings

1. Provide scaled and dimensioned detail drawings of all luminaire types, except where specified fixtures are standard, unmodified, catalogued units. For catalogued units, fully detailed catalog information may be substituted for shop drawings. Provide full size cross sections for major luminaires and all custom designed luminaires. Indicate finished dimensions, metal thicknesses and gauges, material finishes, electrical and mechanical connections, fasteners, welds, joints, and provisions for the work of others. For fixtures specified as "continuous runs", provide scaled drawings showing fixture, connector, and lamp layout for the actual length of run. Detail all required fittings.
2. For standard catalog items with no modifications, submit catalog cut sheets, which clearly show all elements to be supplied, and all corresponding product data (including lamping, ballast quantity, ballast manufacturer and model number, voltage, input watts, materials, finishes, accessories and/or options and any miscellaneous items detailed in the written description of the specification). If a cut sheet shows more than one (1) fixture type, all non-applicable information shall be crossed out. Submittals must be prepared by the manufacturer or manufacturer's local representative agency and clearly indicate the manufacturer's name and representative agency's name on the submittals.
3. For standard Catalogued Fixtures:
 - a. Submit a certificate of compliance with Alzak finish requirements with all requests for approval.
 - b. When more than one (1) louver panel occurs in a fixture, submit the dimensional layout of individual louver panels and supporting "tee" members as part of shop drawings.



4. For luminaires such as custom, modified, linear mounted in continuous rows, and solid state lighting systems with remote ballasts and/or controllers submit a reproducible drawing prepared by the manufacturer showing all details of construction, lengths of required runs, lamp layout, power locations, ballast locations, pendant locations where applicable, finishes and list of materials. Drawings must be to scale. Contractor shall provide manufacturer with field dimensions of all architectural coves where continuous runs are to be mounted. If scallop shields, wallwash reflectors or baffles are required, drawings shall indicate relative position to wall or adjacent vertical surface.
5. For all submittals, manufacturer shall provide submittals within two (2) weeks of receipt of order. All submittals shall have project name and fixture type clearly shown.
6. Fixture cuts and shop drawings shall be submitted in quantities and format as described in the General Conditions Section of these Specifications.
7. The Commissioner shall make the final determination as to whether or not the submittal contains sufficient information, and reserves the right to request a shop drawing if the fixture cut is insufficient.
8. Submit fixture data with mounting details that include appropriate mounting accessories for each ceiling type.

C. Product Data

1. Indicate type of ballast and manufacturer, ballast quantity and location. Include information as to power factor, input watts, voltage and ballast factor. Indicate mounting distance limitations and standard wire sizes for remote ballasts for all luminaires.
2. Indicate quantity, color, temperature, and type of lamps to be used.
3. Provide independent laboratory photometric data for all luminaire types. Photometric testing and reporting shall conform to I.E.S. procedures. Where the lamps and/or ballasts specified are other than ones for which published photometric data is available, submit additional test data.

1.4 QUALITY ASSURANCE

- A. Except as modified by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Underwriters Laboratories (U.L.)
 2. ASHRAE 90.1 and the State Energy Code.
 3. National Electric Code (N.E.C.)
 4. National Fire Protection Agency (N.F.P.A.)
 5. Certified Ballast Manufacturers Association (C.B.M.)



6. Illuminating Engineering Society (I.E.S.)
 7. American Society for Testing and Materials (A.S.T.M.)
 8. American National Standards Institute (A.N.S.I.)
 9. National Electrical Manufacturers Association (N.E.M.A.)
 10. ETL (Intertek Testing Service)
- B. Emergency and exit lighting shall comply with UL924.
- C. All luminaires and assembled components shall be new, of good quality, and approved by and bear the label of UL or other approved testing agencies (i.e., ETL) unless otherwise specified in writing. Documentation of such testing shall be provided upon request.
- D. Luminaires installed in outdoor protected areas (such as building soffits) and indoors in area subject to water or extreme humidity shall be UL Listed for damp locations. Luminaires in outdoor protected areas shall be UL Listed for damp and wet locations.
- E. LED color temperature values shall not deviate from three (3) McAdam ellipse threshold steps from ANSI color temperature target.

1.5 WARRANTIES

- A. Refer to DDC General Conditions
- B. All fixtures and workmanship shall be guaranteed free of defects and fully operational for a minimum of one (1) year after installation, unless otherwise noted below. Any fixtures or workmanship found to be defective during the warranty period shall either be fixed or replaced to the Owner's approval by the Contractor at no cost to the Owner.
- C. Ballasts for fluorescent and high intensity discharge fixtures shall be covered by a minimum two (2) year warranty after installation unless otherwise specified against defects in workmanship or material. Warranty shall include in-warranty service program providing for payment of authorized labor charges incurred in replacement of inoperative in-warranty ballasts.
- D. Solid state lighting luminaires, drivers, controllers, and other system components shall be covered by a minimum five (5) year warranty after installation unless otherwise specified against defect in workmanship or material. Warranty shall include in-warranty service program providing for payment of authorized labor charges incurred in replacement of inoperative in-warranty ballasts.
- E. LED emergency battery power supply shall be capable of operating the LED fixtures specified. Battery shall have a five (5) year guarantee.
- F. LED drivers shall carry minimum of five (5) years warranty.



- G. Fluorescent emergency battery power supply shall have a five (5) year guarantee.

PART 2 - PRODUCTS

2.1 MARKING OF FIXTURES

- A. Plainly mark fixtures equipped with ballasts for operation of rapid start lamps "Use Rapid Start Lamps Only." Similarly, mark other fixtures according to proper lamp type. Clearly mark ballasts that have multilevel outputs, and indicate proper terminals for the various outputs. Provide markings that are clear and which are readily visible to service personnel, but not visible from normal viewing angles when lamps are in place.
- B. Manufacturer must provide all labeling information that is applied with the submittals, i.e., warning labels, special wiring requirements restrictions in mounting, disclaimers, etc.

2.2 FABRICATION AND MATERIALS

- A. Provide fixtures completely factory-assembled and wired, and equipped with necessary sockets, ballast, wiring, shielding, reflectors, channels, lenses and other parts necessary to complete the fixture installation, and deliver to project site ready for installation.
- B. Unless otherwise noted, use only completely concealed hardware. Weld exposed metal at joints, fill with weld material, grind smooth, and make free from light leaks. Gasket incandescent fixtures with overlapping trim. Weld ballast support studs, socket saddle studs and reflector support studs to fixture body. Self-threading screws are not approved. Ventilate ballast compartments and firmly secure ballast to conducting metal surface. Provide fixtures using bottom relamping, unless otherwise noted.
- C. Construct fixtures with the minimum number of joints. Make unexposed joints by approved method such as welding, brazing, screwing or bolting. Soldered joints are not acceptable. Do not use self-tapping methods or rivets for fastening part which shall be removed to gain access to electrical components requiring service or replacement, or for fastening any electrical components or their supports.
- D. Provide metallic cast or extruded parts of fixtures that are close grained and free from imperfections or discolorations. Provide cast or extruded parts that are rigid, true to pattern, and of ample weight and thickness. Provide cast or extruded parts that are properly fitted, filed, ground, and buffed to provide finished surfaces and joints free of imperfections.
- E. Provide housings for discharge lamps (fluorescent, H.I.D.) fixtures that make electrical components easily accessible and replaceable, without removing the fixture body from its mounting.

2.3 FINISHES

- A. Apply fixture finishes after fabrication in a manner that will assure a durable wear-resistant surface. Prior to finishing, hot clean the surfaces by accepted chemical means, and treat them with corrosion inhibiting (phosphating) treatment to assure positive paint adhesion. Give exposed metal surfaces, brass, bronze, aluminum, etc. and finished castings (except chromium plated or stainless steel parts) an even coat of high



grade methacrylate lacquer or transparent epoxy. Anodize exposed aluminum surfaces in a 20-minute bath for corrosion resistance. Make sheet steel fixture housing, and iron and steel parts which have not received phosphating treatment, or which are to be utilized in exterior applications, corrosion resistant by zinc or cadmium plating, or hot-dip zinc galvanizing after completion of all forming, welding, or drilling operations.

- B. Cadmium plate screws, bolts, nuts and other fastening or latching hardware.
- C. Unless specifically indicated otherwise, provide fixtures with a high-temperature baked enamel coating of color and finish as specified. Unless otherwise specified, provide white baked enamel reflective surfaces with a minimum reflectance of 86%. Give all parts proper etched surface preparation prior to painting to assure paint adherence and durability.

2.4 FIXTURE MANUFACTURERS

- A. Manufacturers are listed in the Lighting Fixture Schedule in the Contract Documents and within these specifications. The designations indicated on the Lighting Fixture Schedule are a design series reference (not necessarily a complete catalog number), and do not necessarily represent all of the special requirements as specified in the Contract Documents. Contractor is responsible for meeting all requirements of the Contract Documents.
- B. The listing of a manufacturer does not assure acceptance of a particular fixture. It is the sole responsibility of the Contractor to ensure that any price quotations and submittals made are for lighting equipment which meets or exceeds the specifications included herein.

2.5 BALLASTS

- A. General
 - 1. Provide ballasts which are suitable for the electrical characteristics of the supply circuits to which they are to be connected, and which are suitable for operating the specified lamps.
 - 2. Provide ballasts that are listed with Underwriters Laboratories and bear the U.L. label. All ballasts shall be designed, built and tested in accordance with ANSI and NEC standards.
 - 3. Provide ballasts having the lowest sound rating available for the lamps specified; clearly show their respective sound ratings. Replace ballasts found by the Commissioner to be too noisy, without charge, prior to substantial completion of the project.
 - 4. Provide identical ballasts within each fixture type. All ballasts within the same luminaire must be of the same manufacturer.
 - 5. Provide dimmer type ballasts of design recognized and approved by U.L. These ballasts shall coordinate with dimming control devices specified for the particular application.



6. Ballasts shall be approved for the respective application. Approval shall be in writing from the ballast manufacturer. The manufacturer shall perform an 8-hour documented test before installation verifying the ballast compartment and lamp temperatures will not exceed the manufacturer's published limits.
7. Provide UL listed damp location ballasts and UL listed cold weather ballasts for luminaires installed in outdoor unprotected areas.

B. Fluorescent

1. Provide ETL/CBM certified ballasts which are super low heat, energy-saving, rapid-start type, sound rated 'A' unless noted otherwise. Multi-lamp rapid start ballasts shall be of the series sequence type. Use only two-lamp ballasts unless otherwise indicated.
2. Provide Class "P" protected ballasts, indicating that the ballasts have an integral self-resetting, thermally-actuated device that will remove the ballast from line when excessive ballast temperature is reached, and allow reconnection to line when normal temperature is resumed.
3. Rigidly mount ballasts, unless specifically indicated otherwise to the inside of the top of the fixture housing, with ballast surfaces and housing in complete contact for efficient conduction of heat. Permanently affix ballast mounting screws to the fixture housing. Provide only fixtures whose design, fabrication, and assembly prevent overheating or cycling of lamps and ballasts.
4. For outdoor use and wherever ballasts are used outside a heated environment (such as walk-in freezers or cold food handling areas) provide fluorescent ballasts capable of lamp-starting at any temperature down to minus 20°F.
5. Ballasts for T5HO lamps or smaller shall have end of life sensing circuits.
6. Fluorescent electronic ballasts shall conform to the following requirements:
 - a. FCC Regulations, Part 18, Class A, for electromagnetic interference.
 - b. IEEE C62.41, "Guide for Surge Voltages in Low-Voltage AC Power Circuits," Category A, for resistance to voltage surges for normal and common modes.
 - c. UL 935, "Fluorescent Lamp Ballasts."

C. Solid State LED

1. Provide LED drivers with the following:
 - a. High power factor (95% or above)
 - b. Minimum starting temperature of 0°C.
 - c. Provide driver with sound rating of 'A.'



- d. LED driver is UL certified.
 - e. Total harmonic distortion (THD) of less than 20%.
 - f. LED driver is certified by UL for use in a dry or damp location. Outdoor drivers shall be weatherproof. Provide enclosure acceptable to the manufacturer to maintain driver criteria.
 - g. Provide input and output voltages, and wattage for operating.
 - h. Provide dimming standard (0-10V, etc.).
 - i. Inherent thermal protection.
2. LED drivers shall be installed within an electrical enclosure, unless it is rated as a remote mounted enclosure.
3. LED color temperature shall be within a McAdam ellipse with three (3) threshold units.

2.6 FIXTURE WIRING

- A. Provide wiring between fluorescent lamp holders and associated operating and starting equipment, of similar or heavier gauge than the leads furnished with the approved types of ballasts, and having equal or better insulating and heat resisting characteristics. Provide internal wiring of fixtures containing a minimum number of splices. Make splices with acceptable mechanical insulated steel spring type connectors, suitable for the temperature and voltage conditions to which the splices are to be subjected.
- B. Make connections of wires to lamp holder terminals and other accessories in a neat and workmanlike manner, electrically and mechanically secure, with no loose strands protruding. Provide the number of wires extending to or from the terminals of a lamp holder or other accessory that does not exceed the number which the accessory is designed to accommodate.
- C. Provide wiring channels and wireways free from projections and rough or sharp edges. At points or edges over which conductors shall pass and may be subject to injury or wear, round bush to make a smooth contact surface with the conductors.
- D. Install insulated bushings at points of entrances and exit of flexible wiring.
- E. Where outlet boxes are required to support a luminaire, the wall or ceiling outlet box must be securely fastened to support at least 50 pounds. A box may be used to support a luminaire weighing more than fifty pounds if the box is listed and marked for the maximum luminaire weight to be supported. A wall box intended to support a luminaire must be marked to indicate the maximum weight of the luminaire to be supported, if other than fifty (50) pounds.

2.7 LAMPS

- A. Unless specified otherwise, provide lamps as follows:



1. For fluorescent fixtures, provide lamps as indicated in the Lighting Fixture Schedule. Supply lamps from one (1) manufacturer and of one (1) color temperature unless otherwise noted.
 - a. T8: CRI of 80 minimum, color temperature of 3000 K, average rated life of 20,000 hours, unless otherwise indicated.
2. For other fixtures, provide lamps as specified. If not specified, and for fixtures by others, provide lamps as rated by the manufacturer. For each lamp type, provide all lamps from one (1) manufacturer.
3. For LED fixtures, manufacturers are to meet the following criteria:
 - a. LED color consistency, color shift not to exceed 200 degrees Kelvin.
 - b. LED efficiency should not be less than 80 lumens per watt.
 - c. LED maintenance to be L70 or 70% lumen output after 50,000 life span.
 - d. LED color rendering index (CRI) to be no less than 80.
 - e. Minimum of 5 year warranty on all LED boards.

B. All lamps shall be low mercury type.

C. Manufacturers:

1. General Electric
2. Philips Lighting Corp.
3. Osram Sylvania, Inc.
4. Or approved equal

2.8 LAMP HOLDERS

- A. Provide incandescent and H.I.D. lamp sockets with porcelain housings over copper screw shells, with medium base sockets rated at 660W. Plastic or metal sheet sockets are not acceptable.
- B. Provide fluorescent fixture sockets that are white, of heat resistant plastic and rated at 660W. Fluorescent lamp sockets operating with an open circuit voltage in excess of 300 volts shall be of the safety type which opens the supply circuit when the lamp is removed from the sockets.
- C. Rigidly and securely attach lamp holding sockets to the fixture enclosure or husk.
- D. Provide sockets suitable for specified lamps, and set to position the lamps in optically correct spacing and relationship to lenses, reflectors, filters, and baffles.



- E. Where fluorescent lamps are to be used "bare", without diffusers or lenses, provide at least two (2) acceptable lamp retaining clips per fluorescent lamp, for safety.
- F. Lamp holders shall hold lamps securely against normal vibrations and maintenance handling.

2.9 REFLECTORS

A. Aluminum Reflectors

1. Provide reflectors and reflecting cones or baffles fabricated from #12 aluminum reflector sheet, .057 inch (15 gauge) or heavier; and absolutely-free of tooling marks including spinning lines, and free of marks or indentation caused by riveting or other assembly techniques. No rivets, springs, or other hardware shall be visible after installation.
2. The finish of the inner surface of the reflector shall be produced under the Alzak process. The reflector shall have an anodic coating of not less than four (4) mils thick. The reflector inner surface shall be free of water spotting and shall maintain a reflectivity ratio of not less than 83 percent on clear specular finish. The reflector shall have a low iridescence finish free from multiple colors seen from normal viewing angles. Colors shall be derived from dyes supplied by Sandoz Chemical Company or approved equal.
3. Luminaires provided with tri-phosphor type lamps shall be provided with low iridescence aluminum reflectors to eliminate discoloration on aluminum reflector.
4. The reflecting surface of the cone shall be tested for proper seating. Test per ASTM B136-63T.
5. Provide reflectors and baffles of first-quality polished, buffed and anodized finish, "Alzak" or accepted equal, and with specular finish color as selected by the Commissioner.
6. Provide other aluminum reflectors where required; formed and finished as noted on the Contract Documents and elsewhere in the specifications. Provide only reflectors free from blemishes, scratches, or indentations which would distort their reflective function and finished by means of the "Alzak" process, or accepted equal, unless otherwise noted.

B. Painted Reflectors

1. Provide painted reflectors completely formed before application of primer and enamel paint. Make reflectors and reflector bodies for fluorescent fixtures, having baked-on white enamel finish, applied to meet the following requirements and tests: Provide minimum tested reflectance of 86%. After 100 hours exposure to fade-o-meter, reflectance may not be less than 86%, and finish may show no visible color change. Exposure to 100% humidity at 100°F, for 100 hours (cook box test) may show no blistering or other effects. Salt spray (20% sodium chloride) for 150 hours may cause no breakdown of film. When requested, submit a sufficient quantity of flat steel panels having the same primer and paint, applied in the same manner as proposed for the contract items, for subjection to any one or all of the tests listed above by an approved independent testing laboratory. Contractor will pay the cost of the



tests. Tests will be required only in case of dispute about reflector characteristics. Reflectors which do not meet the criteria expressed here shall be replaced at the Contractor's expense.

2. Provide 45-degrees lamp and lamp image cut-off unless otherwise specified. In fixtures where upper reflector is separate from cone, cut-off shall be 45 degrees to match field conditions.
3. Reflector cone retention devices shall not deform the cone in any manner.

2.10 LENSES, FACEPLATES AND TRIMS

- A. Plastic lenses shall be of virgin methyl methacrylate, unless otherwise indicated. No polystyrene lenses will be accepted.
- B. Make lenses, louvers, or other light diffusing elements contained in frames, removable but positively held within the frames so that hinging or other motion of the frame will not cause the diffusing element to drop out.
- C. Provide faceplates of recessed fixtures which open for access to the interior of the fixture, serve as a ceiling trim, and are positively held to the fixture body by adjustable means that permit the faceplate to be drawn up to the ceiling as tight as necessary to insure complete contact of faceplate with ceiling.
- D. Provide ceiling trims for rectangular recessed fixtures with mitered corners, continuously welded and smoothed before shop finishing. Lapping of trim metal is not acceptable.
- E. All prismatic lenses shall have an efficiency of 83% or greater.

2.11 ACCESSORIES

- A. Recessed incandescent luminaires shall be furnished with thermal protection in accordance with Article 410 of the NEC.
- B. Where utilized as raceways, luminaires shall be suitable for use as raceways. Provide feed through splice boxes where necessary.
- C. Provide plaster frames or mounting frames for fixtures that require them. Such frames shall be appropriate for the ceiling construction in which they shall be installed.
- D. Provide necessary hardware with fixtures, such as stems, plates, plaster frames, hangers, and similar items, for safe support of fixtures for the ceiling construction in which they shall be installed. Provide plaster frames made of non-ferrous metal, or of steel that has been suitably rustproofed after fabrication.
- E. For air handling luminaires, provide matte black baffles for end and/or side slots as required so that ceiling plenum is not visible from below.
- F. For fluorescent and H.I.D. luminaires used indoors, where ballast sound rating of 'A' is not available, provide acoustic mounting pads between luminaire housing and ballast to minimize vibration and noise level. Pads shall be installed to the Commissioner's acceptance.



- G. Provide tempered glass lenses for all high intensity discharge (HID) fixtures.
- H. Provide fastening devices of a positive locking type, which do not require special tools to apply or remove them. Do not use tie wires in place of fastening devices.
- I. Attach reflectors to the housing by means of safety chains, to prevent reflectors from falling. No part of the chain may be visible after installation, when viewed from any angle up to 45 degrees from horizontal.
- J. Provide an approved ceiling canopy for each stem, exactly matching stem finish, unless otherwise requested by the Commissioner.

2.12 EMERGENCY LIGHTING

A. General

- 1. Provide emergency lighting as required by referenced standards and indicated on the Contract Documents. The main function of emergency lighting is to direct building occupants safely out of the building in the event of an emergency.
- 2. Provide integral battery ballast power for emergency lighting where an emergency power distribution system does not exist. Provide all long-life batteries. High temperature, maintenance free, nickel-cadmium batteries are acceptable, however, lead-calcium type are not.
- 3. All battery ballasts shall be capable of providing full illumination in emergency mode.

B. Exit Signs

- 1. Exit signs shall have cast-aluminum housings and stencil edge-lit faces. Letters shall be red and 8" high. Light source shall be light emitting diodes (LED). Exit signs shall employ a diffuser lens for even illumination of letters. Products that exhibit "dots" or "hot spots" shall not be acceptable. Exit signs shall have internal sealed lead calcium maintenance free battery rated for 90 minutes.

C. Fluorescent Battery Systems

- 1. Emergency battery power supply suitable for installation remote from or in ballast compartment of fluorescent luminaires, rated for 90 minutes continuous. Unit shall be capable of providing normal fixture operation in a switched fixture. Include "TEST" switch and "AC ON" indicator light capable of installation in the luminaire or remote from the luminaire. Power supply shall have self-test diagnostic feature. Test shall be performed at a minimum of 30 seconds every 30 days and 90 minutes once a year.
- 2. Emergency battery power supply shall be capable of operating one (1) lamp, providing a minimum of 1400 lumens.
- 3. Night light connector: operate one (1) fluorescent lamp continuously.
- 4. Manufacturers



- a. Bodine Co.
- b. Dual-Life
- c. Lithonia.
- d. Or approved equal.

D. LED Battery Systems

1. Emergency battery power supply suitable for installation remote from or in the driver compartment of the LED luminaire. Unit shall be capable of providing normal fixture operation in a switched fixture. Include "TEST" switch and "AC ON" indicator light capable of installation in the luminaire or remote from the luminaire. Power supply shall have self-test diagnostic feature.
2. Emergency battery power supply shall be capable of operating the LED fixtures specified.
3. Provide LED battery with the following:
 - a. Rated input and output voltage and wattages.
 - b. Temperature rating.
 - c. Illumination time (minimum 90 minutes)
 - d. Suitable for indoor and damp locations and for sealed and gasketed features.
4. LED battery shall meet all associated UL ratings, including UL924.
5. Manufacturers
 - a. Bodine Co.
 - b. Dual-Life.
 - c. Lithonia.
 - d. Or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to DDC General Conditions.



- B. Fixture locations as indicated on the Contract Documents are generalized and approximate. Carefully verify locations with the Architect's plans, reflected ceiling plans and other reference data, prior to installation. Check for adequacy of headroom and non-interference with other equipment, such as ducts, pipes, conduit, or openings. Bring conflicts to the Commissioner's attention before proceeding with any work.
- C. Although the location of equipment may be shown on the Contract Documents in certain places, actual construction may disclose that the work does not make its position easily and quickly accessible. In such cases, call the Commissioner's attention to this situation before installing this work, and comply with the installation instructions.
- D. Verify ceiling conditions and ceiling types prior to ordering any fixtures. Furnish appropriate luminaire mounting accessories for each fixture. Such mounting details shall be reviewed by the Commissioner.
- E. Install fixtures in mechanical areas after the ductwork and piping installation. Locate and mount fixtures as indicated on the Contract Documents unless mechanical equipment prohibits or makes it impractical to do so. In such cases, chain or wall mount fixtures so that serviceable equipment is illuminated.
- F. Install fixtures complete with lamps, as indicated, and with equipment, materials, parts, attachments, devices, hardware, hangers, cables, supports, channels, frames and brackets necessary to make a safe, complete, and fully operative installation.
- G. Verify and provide fixtures that are appropriate for the ceiling mounting conditions of the project.
- H. Reject and do not install blemished, damaged or unsatisfactory fixtures. Replace imperfect or unsatisfactory fixtures, if installed, as directed by the Commissioner.
- I. When installed, fixtures shall be free of light leaks, warps, dents, or other irregularities. No light leaks are permitted at the ceiling line or from any visible part or joint of the fixtures.
- J. Provide finish for exposed parts or trims as specified or indicated on the Contract Documents. If finish for exposed parts are not indicated, provide a finish as directed by the Commissioner.
- K. Do not install reflector cones, aperture plates, lenses, diffusers, louvers, and decorative elements of fixtures until completion of wet work, plastering, painting and general clean-up in the area of the fixtures.
- L. Mount fixtures at heights and locations indicated on the Contract Documents, or as requested by the Commissioner.
- M. Adequately protect the housing of recessed lighting fixtures during the installation by internal blocking or framing to prevent distortion of sides, or dislocation of threaded lugs, which, upon completion, shall be in perfect alignment and match the corresponding holes in frames and rims. Holding screws shall be inserted freely without forcing, and shall remain easily removable for servicing. Threads intended to receive holding screws shall be chased after plating and finished to insure easy installation and removal of knurled headed screws.



- N. Parabolic luminaires shall be installed with mylar cover over louvers; cover shall be U.L. listed for temporary lighting. Upon completion of work, remove mylar cover with white gloves.
- O. Fixture supports shall, as a minimum, be adequate to support the weight of the fixtures.
- P. Provide visible hanging devices that are finished to match the fixture finish, unless indicated otherwise.
- Q. Where necessary to meet fire resistance requirements set forth by the NYC Building Code, provide enclosure housings for recessed fixtures that are constructed to provide required fire resistance rating.
- R. Provide attachment devices, including brackets, plaster rings, saddle hanger and tie bars, made of formed, rolled, or cast metal shapes with the requisite rigidity and strength to maintain continuous alignment of installed fixtures. Attach fixtures to the ceiling supporting members, and do not depend upon lathing, plaster or ceiling tile for alignment or support.
- S. Provide fixtures mounted in suspended ceilings that are supported by saddle hangers or the bars attached to runners or between crossbars of ceiling systems. Provide mounting splines or other positive means of maintaining alignment and rigidity.
- T. Provide pendant or surface mounted fixtures with required mounting devices and accessories, including hickey, stud-extensions, ball aligners, canopies, and stems. Make mounting stems of pendant fixtures of the correct length to uniformly maintain the fixture heights shown on the Contract Documents or established in the field. The allowable tolerance in mounting individual fixtures shall not exceed ¼ inch and may not vary more than ½ inch from the floor mounting height shown on the Contract Documents. Install fixtures hung in continuous runs absolutely level, and in line with each other.
- U. Provide hanging devices which, if visible from normal viewing angles, exactly match fixture finishes, unless otherwise requested by the Commissioner.
- V. Place stems to be vertical.
- W. Provide at least two (2) supports for individually mounted fluorescent fixtures. Where fixtures are ganged, provide supports at 8 ft. minimum intervals, unless otherwise indicated. All fixtures shall be supported to the structure or black iron. Fixtures and appliances shall not be supported by ceiling tiles, sheet rock, or plaster.

3.2 ACCESSIBILITY

- A. Install equipment such as junction and pull boxes, fixture housings, transformers, ballasts, switches and controls, and other apparatus that requires occasional access for operation and maintenance, to be easily accessible and appropriate for mounting and ceiling conditions.
- B. All remote LED luminaires and drivers shall be located in a dry, well ventilated and easily accessible location determined by the Commissioner.



3.3 ADJUSTMENT

- A. Provide manpower and tools for final focusing and adjustment, under the Commissioner's supervision, of all adjustable fixtures (including fixtures with variable socket positions) after regular working hours, whenever necessary, at no additional cost of the City of New York.

3.4 CLEANING

- A. Immediately prior to occupancy, clean reflector cones, reflectors, aperture plates, lenses, louvers, lamps and decorative elements. Destaticize lenses after cleaning, installing them to leave no finger or dirt marks. At the time of final observation, fixtures shall be clean and free from marks, dust, spotting or other defects. Replace any broken or defective parts prior to final inspection. Replace or make good all defects revealed by final observation.
- B. Remove labels and other markings, except the UL listing label.
- C. Regulated Waste Disposal
 - 1. All waste shall be labeled, stored, handled, transported, and disposed appropriately.
 - 2. All fluorescent lamps shall be assumed hazardous waste and shall be boxed and removed to an approved lamp recycler. Provide required documentation and comply with all hazardous waste regulations.
 - 3. All ballast waste shall be labeled, stored, handled, transported and disposed of in approved plastic lined drums. Contractor shall arrange for the proper disposal of the ballasts with an approved recycler. Provide all required documentation and comply with all hazardous waste requirements.

3.5 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage then replace damaged fixtures and components. Verify normal operation of each fixture after installation.
- B. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify normal transfer to battery power or emergency power source and retransfer to normal.
- C. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. Retest to demonstrate compliance with specification requirements where adjustments are made. Replace fixtures with damage or corrosion during warranty period.

END OF SECTION 26 50 00



**Department of
Design and
Construction**

FMS No. PV274CHLL
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SECTION 26 60 00

COMMISSIONING FOR ELECTRICAL 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. Commissioning consists of systematically documenting that specified components and systems have been installed and started up properly and then functionally tested to verify and document proper operation through all sequences of operation and conditions. In addition, instruction of The City of New York's Operations Personnel will be verified and final project O&M Documents will be reviewed for completeness.

1.3. QUALITY ASSURANCE

- A. Refer to DDC General Conditions.
- B. All inspections and tests shall use the following references.
1. Contract Specifications.
 2. Contract Drawings.
 3. Manufacturer's instruction manuals and approved shop drawings for applicable equipment.
 4. InterNational Electrical Testing Association (NETA) Standards for Electrical Power Equipment and Systems.
 - a. NETA ATS (Acceptance testing specifications)
 - b. NETA ECS (Electrical commissioning specifications)
 - c. NETA ETT (Electrical testing technicians)
 - d. NETA MTS (Maintenance testing specifications)
- C.

PART II – PRODUCTS

2.1. EQUIPMENT AND INSTRUMENTS FOR Cx PROCESS

- A. The Contractor shall furnish all tools, instruments, laptops, calibrated meters, software programs, personnel, and services required to perform the commissioning process. This includes providing the connection to systems to be tested, temporary alterations for test purposes, calibrations, operation of the test equipment & instrumentation and generating test results (as required), and the restoration of equipment/systems to original operating condition. A list of all tools and equipment to be used during commissioning shall be submitted to the CxA for approval. The Contractor shall furnish necessary utilities for the commissioning process.



- B. Proprietary test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Proprietary test equipment (and software) shall become the property of The City of New York upon completion of the commissioning process.

2.2. COMMISSIONING DOCUMENTATION

- A. All documentation for the commissioning process shall be entered into the CxA's commissioning project progress tracking software tool. The Contractor will be allowed web-based access to the software upon request. Additionally, the Contractor may download the CxA's mobile application to a tablet format. The mobile application is available in Apple, Android, and Windows format. There is no fee associated with the software or the mobile application. The Contractor shall allow sufficient time to familiarize himself with the operation of the software.

PART III – EXECUTION

3.1. GENERAL

- A. The Contractor shall complete all phases of work so the systems can be started, tested, balanced, and acceptance procedures undertaken. This includes the complete installation of all equipment, materials, pipe, duct, wire, insulation, controls, etc., per the contract documents and related directives, clarifications, and change orders.

3.2. PARTICIPATION IN ACCEPTANCE PROCEDURES

- A. The Contractor shall provide skilled technicians to startup and debug all systems within the project contracted work. These same technicians shall be made available to assist the Commissioning Authority in completing the commissioning program. Work schedules, time required for testing, etc., shall be requested by the Commissioning Authority and coordinated by the Contractor. The Contractor shall ensure that the qualified technician(s) are available and present during the agreed upon schedules and of sufficient duration to complete the necessary tests, adjustments, and/or problem resolutions.
- B. System performance problems and discrepancies may require additional technician time, Commissioning Authority time, reconstruction of systems, and/or replacement of system components. At no additional cost to The City of New York, the additional technician time shall be made available for subsequent commissioning periods until the required system performance is obtained.
- C. The Commissioning Authority reserves the right to question the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or sub-system. Qualifications of technicians shall include expert knowledge relative to the specific equipment involved and a willingness to work with the Commissioning Authority. The Contractor shall provide adequate documentation and tools to start-up and test the equipment, system, and/or sub-system.

3.3. DEFICIENCY RESOLUTION



- A. In some systems, inaccurate adjustments, misapplied equipment, and/or deficient performance under varying loads will result in additional work being required to commission the systems. This work shall be completed under the direction of The Commissioner, with input from the Contractor, equipment supplier, and Commissioning Authority. Whereas all members shall have input and the opportunity to discuss, debate, and work out problems, The City of New York and/or Commissioner shall have final jurisdiction over any additional work done to achieve performance.
- B. Corrective work shall be completed in a timely fashion to permit the completion of the commissioning process. Experimentation to demonstrate system performance may be permitted. If the Commissioning Authority deems the experimentation work to be ineffective or untimely as it relates to the commissioning process, the Commissioning Authority shall notify The Commissioner, indicating the nature of the problem, expected steps to be taken, and suggested deadline(s) for completion of activities. If the deadline(s) pass without resolution of the problem, The Commissioner reserves the right to obtain supplementary services and/or equipment to resolve the problem. Contractor shall provide supplementary services incurred to solve problems at no additional cost to the City of New York.

3.4. ADDITIONAL COMMISSIONING

- A. Additional commissioning activities may be required after system adjustments, replacements, etc., are completed. The Contractor, suppliers, and Commissioning Authority shall complete this work at no additional cost to the City of New York.

3.5. SUSTAINING SYSTEM READINESS

- A. The Commissioning Authority will prepare and issue to the Contractor Pre-Functional Checklist (PFC) forms for each system or major piece of equipment to be commissioned. Pre-Functional Checklists are important to ensure that the equipment and systems are installed and operational. It ensures that Functional Performance and Integrated Systems Testing may proceed without unnecessary delays. Each piece of equipment is to receive full pre-functional checkout by the Contractors. No sampling strategies are to be used. The Pre-Functional Checklists for all equipment related to any given system must be successfully completed prior to formal Functional Performance and Integrated Systems Testing of the system.
- B. The Commissioning Authority will monitor and track the completion of the Pre-Functional Checklist forms.
- C. The Contractor shall complete the Pre-Functional Checklists, provided by the Commissioning Authority, as follows:
 - 1. Pre-Functional Checklists should be maintained in a binder(s) or electronically at the Contractor's project site office and are subject to review for comparison between the completion level of the Checklists and the status of the work during site observation visits by the Commissioning Authority.
 - 3. Complete Section 1 "Equipment Delivery" of the Pre-Functional Checklist after equipment delivery to the site.
 - 4. Complete Section 2 "Equipment Installation" of the Pre-Functional Checklist after the equipment installation is complete.



5. Complete Section 3 "Equipment Start-up" of the Pre-Functional Checklist after the equipment has been successfully started. The Contractor is to forward copies of all manufacturer's start-up forms and reports to the Commissioning Authority.
 6. Complete Section 4 "SCADA/Power Monitoring/Lighting Control Integration" of the Pre-Functional Checklist after the equipment and systems control configuration and integration process has been completed.
 7. Complete Section 5 "Notification for Testing" of the Pre-Functional Checklist after the equipment is fully operational and ready for Functional Performance and Integrated Systems Testing.
 8. Completed and signed Pre-Functional Checklists are a pre-requisite for commencing Functional Performance and Integrated Systems Testing. If field observation indicates a significant deviation from actual installation conditions, all checklists will be returned to the Contractor for revision and resubmission at no additional cost to the City.
 9. Only individuals that have direct knowledge and witnessed that a line item task on the Pre-Functional Checklist was actually performed shall initial or check off that item.
- D. The Contractor shall clearly list any outstanding items from the Pre-Functional Checklists and/or manufacturer start-up reports and checklists that were not completed successfully in the Comments section of the applicable Pre-Functional Checklist. The Commissioning Authority will review any items/issues listed and will address them through discussion with the Commissioner and Contractor prior to proceeding with Functional Performance and Integrated Systems Testing.
- E. The Contractor shall develop detailed start-up plans for all equipment. These plans shall be reviewed by the Commissioner and the Commissioning Authority for completeness and verification that the manufacturer-recommended procedures have been completed.
1. The Contractor responsible for the installation and start-up of the equipment is responsible for developing the start-up plan by combining the Pre-Functional Checklist with the manufacturer's detailed start-up and checkout procedures and any required quality assurance testing.
 2. The Contractor shall maintain an updated and annotated copy of the start-up plan that shall be accessible for review by the Commissioner and the Commissioning Authority at periodic intervals.
 3. The completed start-up procedures shall be provided along with the completed Pre-Functional Checklists to the Commissioning Authority prior to the Contractor's certification that the systems are ready for Functional Performance and Integrated Systems Testing.

3.6. FUNCTIONAL PERFORMANCE TESTING

- A. The CxA will provide to the Contractor functional performance tests (FPTs). The Contractor shall review the test procedures, so that proper preparation may occur. The Contractor shall execute the FPT document and prove to the Commissioner and the Cx Authority that the performance of the Electrical Systems achieves the performance level identified. Refer to all other specification sections for other systems that may need to be tested. The following systems are to be commissioned but not limited to:



1. Electrical Panels
 2. Switch Gears associated with the chiller replacement
- B. Detailed testing shall be performed on all installed equipment and systems to ensure that operation and performance conform to contract documents. All tests shall be witnessed by the Commissioning Authority. The following testing is required as part of the commissioning process:
1. Verification tests are comprised of a full range of checks and tests to determine that all components, equipment, systems, and interfaces between systems operate in accordance with contract documents. This includes all operating modes, interlocks, control responses, and specific responses to abnormal or emergency conditions.
 2. Functional performance tests (FPT) shall determine if the electrical system is in accordance with the finalized design intent.

3.8. ROLES AND RESPONSIBILITIES

A. Contractor

1. Assure acceptable representation, with the means and authority to prepare and coordinate execution of the electrical system commissioning program as described in the contract documents.
2. Attend commissioning meetings scheduled by the CA.
3. Coordinate inclusion of commissioning activities in the construction schedule.
4. Complete Pre-Functional Checklists and manufacturer's pre-startup checklists prior to scheduling pre-testing of the electrical system.
5. Issue a notice that electrical pre-testing has been scheduled.
6. Monitor, respond, and remedy deficiencies identified in the Corrective Issue Reports (CIRs) distributed by the CxA in order to expedite corrective actions necessary to achieve design intent.
7. Facilitate resolution of deficiencies that were identified by observations or performance testing.
8. Participate in the Functional Performance Tests as required to achieve design intent.
9. Participate in O&M Instruction as required by DDC General Conditions.
10. Include requirements for submittal data, O & M data, and instruction in each purchase order or sub-contract written.
11. Ensure participation of major equipment manufacturers in appropriate instruction and testing activities.
12. Attend Construction Phase coordination meeting scheduled by the Commissioning Authority.
13. Assist the Commissioning Authority in all verification and functional performance tests.
14. Prepare preliminary schedule and include the following tasks that will be executed: electrical system orientation and inspections, O&M manual submission, instruction sessions, NETA testing, equipment start-up, and task completion for use by the Commissioning Authority. Update schedule as appropriate throughout the construction period.
15. Attend initial instruction session.
16. Conduct electrical system orientation and inspection at the equipment placement completion stage.



17. Update drawings to the record condition to date, and review with the Commissioning Authority.
18. Gather O&M data on all equipment, and assemble in binders as required by DDC General Conditions.
19. Notify the Commissioning Authority a minimum of two weeks in advance, so that witnessing equipment and system start-up and testing can begin.
20. Notify the Commissioning Authority a minimum of two weeks in advance, of the time for start of the initial energization.
21. Participate in and schedule vendors to participate in the instruction sessions.
22. Provide written notification to the Commissioning Authority that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-systems are operating as required.
 - a. Electrical equipment and all contracted equipment.

3.9. STARTUP

- A. The Contractor shall follow the start-up and initial checkout procedures listed in this specification and in DDC General Conditions. Division 26 has start-up responsibility and is required to complete systems and sub-systems so that they are fully functional and meet the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve, lessen this responsibility, or shift that responsibility partially to the Commissioning Agent or The City of New York.

- 3.10. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems, or sub-systems at the discretion of the CxA and the Contractor. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all Pre-Functional Checklists as soon as possible.

COMMISSIONING STATUS TRACKING

- A. The Contractor shall verify that the Tag designation as well as the number (count) of each unit listed is correct against those contained within the initial Contract Documents.

END OF SECTION 26 60 00

FMS ID: PV274CHLL



Department of
Design and
Construction

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

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

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

CONTRACT NO. 1 HVAC WORK

Chiller Replacement and BMS Upgrade

**LOCATION: 47-01 111th Street
BOROUGH: Queens, 11368
CITY OF NEW YORK**

Contractor _____

Dated _____, 20____

Entered in the Comptroller's Office _____

First Assistant Bookkeeper _____

Dated _____, 20____

